SCADALog

Reference and User Manual

CONTROL MICROSYSTEMS

SCADA products... for the distance

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SCADALog Reference and User Manual

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Overview

SCADALog is a user interface to the TelePACE DLOG or ISaGRAF dlogcnfg and dlog data logger functions. SCADALog reads data from a Controller and stores it in CSV files on your PC. Data can be read manually or automatically using command scripts. Data can be appended to an existing file or a new file can be created. Data can be viewed and printed from the SCADALog program.

Data logs are created and defined using TelePACE or ISaGRAF applications. These programs specify the data that is logged and the format of the data.

This manual provides full documentation on the SCADALog program. We strongly encourage you to read it, and to notify us if you find any errors or additional items you feel should be included in our documentation.

Organization of the Manual

This manual describes the SCADALog data log extraction program. It is organized into the following sections.

Getting Started describes installation of the software.

SCADALog Operation describes the process involved in creating a Ladder Logic application program for use with SCADALog.

SCADALog Reference describes each command in the SCADALog program.

Additional Documentation

The on-line help for the SCADALog program contains a complete reference to the SCADALog program commands. To display on-line help, select **Contents** from the **Help** menu.

Getting Started

To use SCADALog, you need to install the program on your system. The automated installation takes only a few minutes.

Some virus checking software may interfere with Setup. If you experience problems with Setup, disable your virus checker and run Setup again.

System Requirements

The minimum system configuration for SCADALog is:

- Personal computer using Pentium or higher microprocessor.
- Microsoft Windows NT, Windows 2000 or Windows XP operating systems.

  NOTE: Windows 95, 98 and ME operating systems are no longer supported.
- Minimum 4 MB of memory.
- Mouse or compatible pointing device.
- Hard disk with approximately 1.0 Mbyte of free disk space.

Making Backup Disks

You should make a backup copy of the SCADALog disk before using the software. A backup copy protects you against damage to the disk. Always work with the backup copy – if it fails, you can make a new copy from the original disk. Store the original disk in a safe location.

- In My Computer, click the icon for the disk you want to copy.
- On the File menu, click Copy Disk.
- Click the drive you want to copy from and the drive you want to copy to, and then click Start.

Installation on a Hard Disk

To install the SCADALog program:

- Insert the SCADALog setup disk into CD drive.
- Click the Windows **Start** button, and then click **Run**.
- In the Open box, type **d: setup** and click **OK**.

Follow the setup directions on the screen to install SCADALog.

Running SCADALog Program

To run the SCADALog program:

- In the SCADALog group of the Program Manager, double click on the SCADALog icon.

SCADALog Operation

This section of the manual is organized in a manner that will lead the new user through the steps required to create a data log in a SCADAPack controller or 4202GFC and extract the data logs using SCADALog. It is recommended that new users follow the steps outlined in the ***Creating a SCADALog Application*** section.

The ***SCADALog Reference*** section has detailed explanations for all the commands and functions described in this section. In addition to this manual the on-line help for the SCADALog program contains a complete reference for the program.

To display on-line help, select **Contents** from the **Help** menu.

Creating a SCADALog Application

SCADALog is used to extract data from logs that have been configured in a SCADAPack controller or 4202GFC. In order to log data a TelePACE or ISaGRAF application is created using the data logging functions.

For TelePACE programs the DLOG function is used configure the data logging. For ISaGRAF applications the dlogcnfg and dlog functions are used. Follow the procedure in one of the first two steps, depending on the programming environment you are using, to create the data log in the SCADAPack controller of 4202GFC. Then follow the remaining steps to use SCADALog to retrieve data from these logs and then view, export and print this data.

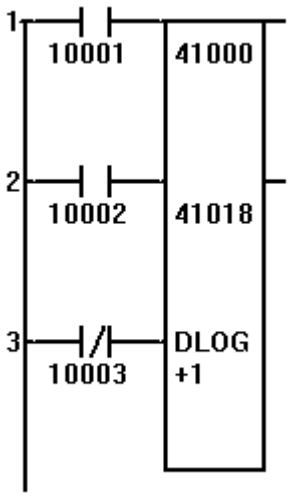
- ***Create a TelePACE Ladder Logic Application or,***
- ***Create an ISaGRAF Application***
- ***Read SCADALog Configuration from Controller***
- ***Read Logs from Controller***
- ***View Logged Data***
- ***Export Data to a Spreadsheet***
- ***Print Reports***
- ***Getting Help***

Create a TelePACE Ladder Logic Application

Up to sixteen independent data logs can be configured in any ladder logic program. This example will illustrate how to create one data log only. The log will contain two data registers and a timestamp. To create a data logging ladder logic application:

- Open TelePACE.
- Select the **New** command from the **File** menu.
- Select the **Type** command from the **Controller** menu.
- Select the appropriate SCADAPack Controller.
- Select the **Register Assignment** command from the **Controller** menu.
- Select the **Default** button.

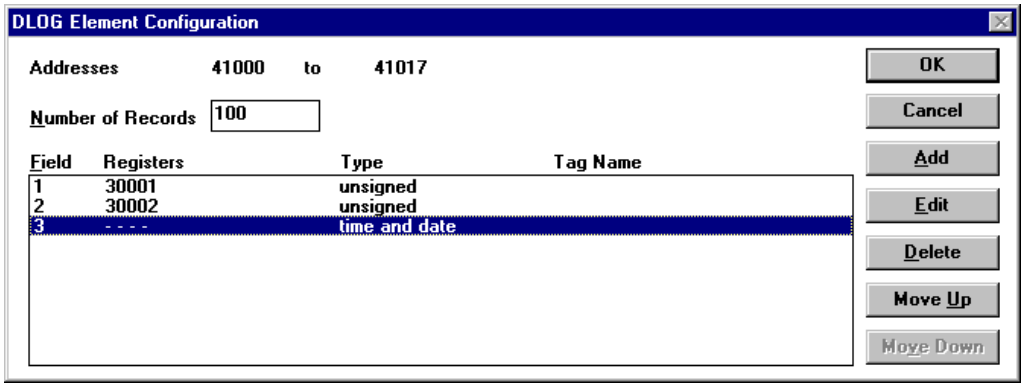
- Insert the following ladder logic elements in the first network:



Digital input register 10001 enables the DLOG, digital Input 10002 grabs data and digital input 10003 deletes the data log.

The DLOG element itself uses registers 41000 to 41017 for configuration and register 41018 as the status. This DLOG is configured as log number 1.

- Highlight the DLOG element with the cursor and select the **Element Configuration** command from the **Edit** menu.
- Configure the DLOG Element Configuration dialog as follows. Refer to the *TelePACE Ladder Logic User Manual* for more information on configuring the DLOG function.



This DLOG function will log up to 100 records each of registers 30001, 30002 and a timestamp.

- Select the **OK** button to close the dialog.
- Select the **Save As** command from the **File** menu to name and save this program to disk.
- Select the **Write to Controller** command from the **Communications** menu and write the ladder logic application to the Controller.
- Ensure that digital input registers 10001, 10002 and 10003 are off.
- Select the **Run** command from the **Operation** menu.

- Select **Monitor Online** from the **Activity** menu.
- Monitor status register 41018 as an unsigned variable. If this register does not appear in the monitor list, select the Monitor List command from the Edit menu and add register 41018 to the **Monitor Addresses** field. Register 41018 should contain a 0.
- Close digital input 10001 to enable the DLOG function. Register 41018 should now contain a 10 indicating that the log has been created.
- Toggle digital input 10002 several times to log data.

Create an ISaGRAF Application

Up to sixteen independent data logs can be configured in any ISaGRAF application. There are two functions that are used in ISaGRAF to create a data log.

- The **dlogcnfg** function is used to create the data log.
- The **dlog** function is used to log data to the data log.

This example will illustrate how to create one data log only. The log will contain three data registers and a timestamp. This example is not intended as a complete reference for creating ISaGRAF applications. Refer to the ISaGRAF User and Reference manual for complete information on creating projects and programs. To create a data logging ISaGRAF application:

- Open ISaGRAF.
- From the Project Management window select the **New** command from the **File** menu. Enter a suitable name for the new project; in the example the project is named LOGPROJ.
- Double click the new file name in the project list to open the programs window.
- From the Programs window select the **New** command from the **File** menu. Enter a suitable name for the new program; in the example the program is named FBDPROG and is a Function Block diagram type program.
- From the Programs window select the **I/O Connection** command from the **Project** menu. Add a suitable I/O configuration for your controller type.
- From the Programs window select the **Dictionary** command from the **File** menu. Add the following variables:

Variable	Type	Initial Value
enableCfg	Boolean	N/a
deleteCfg	Boolean	N/a
logID	Integer	5
maxRecords	Integer	225
numFields	Integer	4
boolType	Integer	0
intType	Integer	3
realType	Integer	4
daysType	Integer	5
enableSave	Boolean	N/a
saveRecord	Boolean	N/a
boolVar	Boolean	N/a

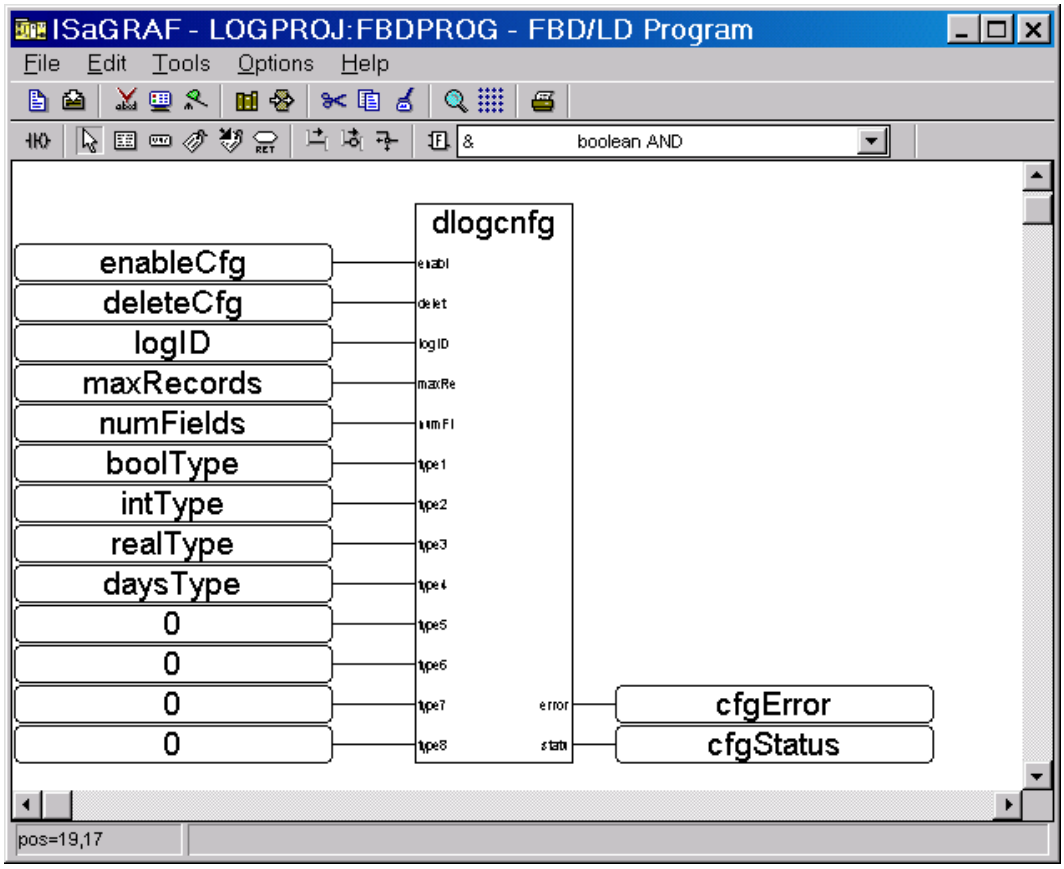
Variable	Type	Initial Value
intVar	Integer	N/a
realVar	Real	N/a
saveError	Boolean	N/a
saveStatus	Integer	N/a
cfgStatus	Integer	N/a
cfgError	Boolean	N/a

- Create the data log as shown in the Create Data Log section and log data as shown in the Log Data section.

Create Data Log

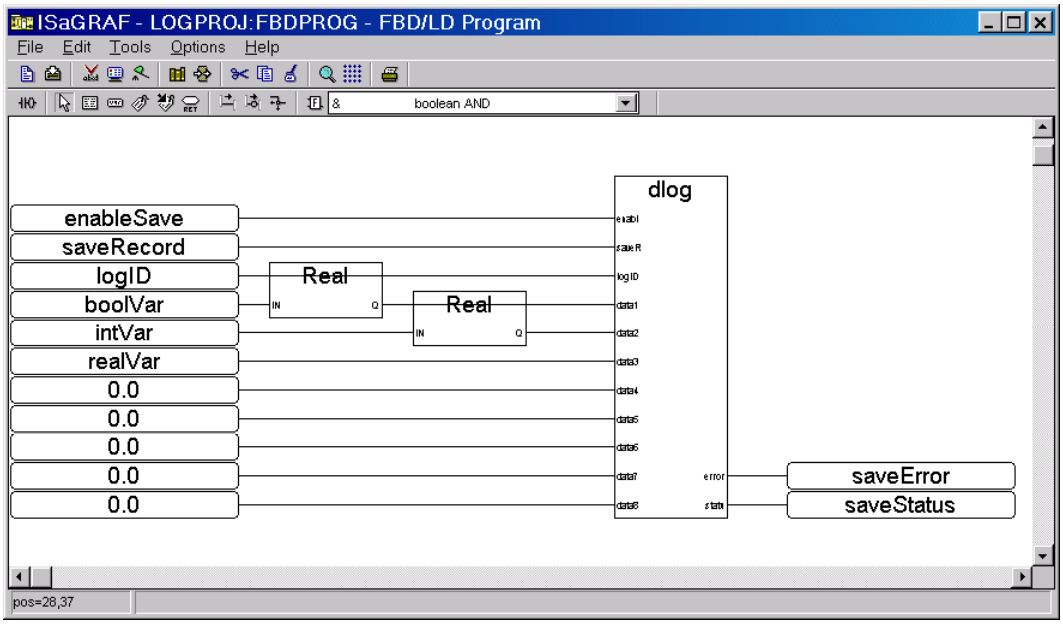
The following example is used to create a data log with **logID** = 5. The input variables define the inputs to the **dlogcnfg** function block.

- The maximum number of records in the log is 225 (maxRecords = 225).
- The number of data fields is 4 (numFields = 4).
- The first field is boolean (boolType = 0).
- The second field is integer (intType = 3).
- The third field is real (realType = 4).
- The last field is days & hundredth seconds (daysType = 5).
- The remaining field types are unused and may be set to 0.



Log Data

The following example logs a record with four fields into the data log with logID=5. The log has been created using the **dlogcnfg** function block. The first and second fields are boolean and integer. These input variables must be converted into real type before connecting to the **dlog** inputs. The third field is Real; its input variable can connect directly to the input; The fourth field is days & hundredth seconds and is calculated by the function block. This input is ignored and may be set to 0.0. Fields 5 to field 8 are not used and may be set to 0.0.



Establish SCADALog Communication with the Controller

The SCADALog program communicates with the Controller using one of your PC's serial communication ports. Communication parameters are stored in the SCADALog file. When you open an existing file, the communication settings for your Controller are restored. A new file contains default settings, which may have to be changed if you altered Controller's default serial port settings when loading the DLOG ladder logic application.

To establish communication with the Controller:

- Open SCADALog.
- Select the **New** command from the **File** menu.
- Select the **PC Communication Settings** command from the **Communication** menu.
- Select the Protocol to use in the **Communication Protocols Configuration** and then click the **Configure** button to set the communication parameters.

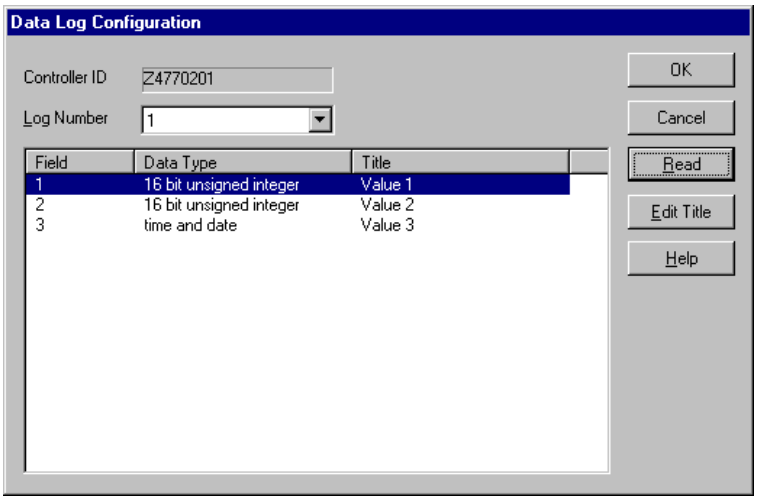
Refer to the ***SCADALog Reference*** section for more information.

Read SCADALog Configuration from Controller

Before extracting logged data from the Controller, SCADALog must read the configuration for each log in order to set up the required log windows and data fields.

To read the DLOG configurations:

- Select the **Configuration** command from the **Data Log** menu.
- Select the **Read** button. A dialog will appear to inform you of the progress of the communication.
- The Data Log Configuration dialog will now appear as:



The two data fields and time stamp field for Log 1 will be listed.

- Select the **OK** button to close the dialog.

Read Logs from Controller

Data may now be read from the Controller logs and placed into their respective log windows.

To read data logs from the Controller:

- Select the **Read Logs** command from the **Data Log** menu.
- On the *Read Logs from Controller* dialog, select either the **All Logs** or **Selected Logs** radio button. Due to the fact that only one log has been configured in this example, either selection will result in the same operation.
- Select the **Purge Logs after reading** command if you want to erase the data from the Controller log after reading the data into SCADALog.
- Select the **OK** button.
- A dialog will appear indicating the progress of the communication by the entry number and the log number.
- When all or selected logs have been read, the *Read Logs* dialog will appear summarizing the total number *of new records added* and *duplicate records ignored*. If the data log is read again, then any new records will be appended to the appropriate log window and any duplicate entries will be discarded.

Note: If data is being logged (grab data input on DLOG element) at a faster rate than being read from the Controller with SCADALog, then SCADALog will continuously read data. In this case, selecting **Cancel** on the *Communication Progress* dialog will stop the read operation and update the log windows with any data that was read.

Save Logged Data and Configuration

SCADALog saves the communication parameters, data log configuration and logged data in a set of files, (*see* ***Controller File Types*** for details). For convenience all files are saved with a single command.

You should save the files after any change to configuration, or after reading the data logs from the Controller.

To save a SCADALog file, select the **Save** command from the **File** menu.

When you save a file for the first time, SCADALog displays the *Save As* dialog box so you can name your file. You can also use the **Save As** command to change the name or directory of an existing file.

Controller File Types

SCADALog uses separate files for data log configuration and data. The table below indicates the file types and extensions.

File Type	File Contents	Extension
Configuration	SCADALog Configuration	SLC
Data	Logged data for view	CSV

- The configuration file name is used as the base for all file names. The configuration file is stored as `filename.SLC`. It includes the data log configuration read from the Controller, the column titles for each data log; and column sizes for each data log.
- The data files are stored as `filename-nn.CSV`, where `nn` is a number from 01 to 16 indicating logs numbered 1 to 16.

View Logged Data

Logged data, read from the Controller, is viewed using selections in the **View** menu. The **View** menu commands select which log's data is to be displayed in the active window.

Export Data to a Spreadsheet

SCADALog can export the data in the data log configuration and the data from any view. Data is exported in the CSV (comma-separated values) format. This format can be read by most spreadsheet and database software.

Data is exported from the current window. Select the window containing the view you wish to export or change the view in the current window using the *View* menu.

To export data from a view:

- Select the **Export** command From the **File** menu

The Export data dialog appears for views that support the selection of records for exporting.

The **All** selection exports all the data in the view.

The **Selection** selection exports the data you have selected. You can select the records that interest you by clicking on them.

- Click on the **OK** button.

Refer to the ***SCADALog Reference*** for more information.

Print Reports

SCADALog can print the data in the Controller configuration and the data from any view. Data from views can be previewed before printing to see how the report will appear. Refer to the ***SCADALog Reference*** for more information.

To print data from a view

- Select the window containing the view you wish to print or change the view in the current window using selections from the **View** menu.

You can select the records that interest you by left-clicking the mouse button on them.

- Select the **Print** command from the **File** menu.
- The **Printer** controls let you select the printer and change it's properties such as paper size and orientation.
- The **Print range** controls let you select what to print.
- The **Copies** control lets you select how many copies to print.
- Click on **OK** to print the report.

Clicking the **Cancel** button or pressing the **Escape** key closes the dialog.

To preview a report from a view

- Select the window containing the view you wish to print or change the view in the current window using selections from the **View** menu.

You can select the records that interest you by left-clicking the mouse button on them.

- Select the **Print Preview** command from the **File** menu.

Changing the Print Setup

The font, page headings, margins, and the size of the columns on the hourly history, daily history or event log reports can be changed.

- To change the print set up select the **Print Setup** command from the **File** menu.

Refer to the ***SCADALog Reference*** for more information.

Getting Help

The help file has a general description of how the program operates and can be used.

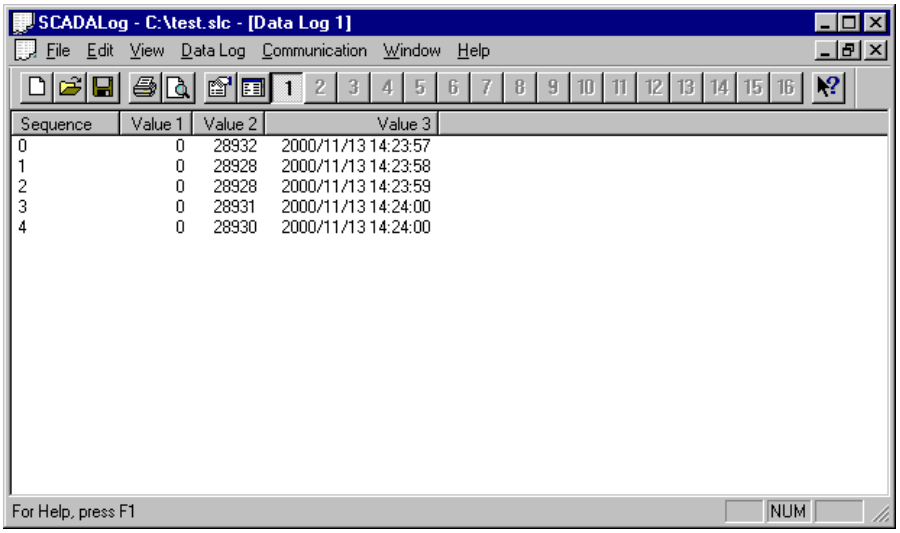
- Select Contents from the Help menu to display SCADALog help.

SCADALog Reference

This section of the user manual is a complete reference to the commands and display options of SCADALog.

SCADALog Display

The SCADALog display window is divided into the following areas. Each of the areas is described in the following sections of this manual.



The ***Title Bar*** is located along the top of the SCADALog window and contains application file information and window control functions.

The ***Menu Bar*** provides access to all SCADALog commands. This reference contains complete information on all SCADALog menu commands.

The ***Tool Bar*** is located below the Menu Bar and provides quick mouse access to SCADALog functions.

The **Status Bar** is displayed across the bottom of the application window and describes actions of menu items as you use the arrow keys or mouse to navigate through menus.

Title Bar

The title bar is located along the top of the window. It contains the name of the application SCADALog and the currently opened controller file. The current view and log number are displayed in brackets.

The title bar provides commands for control of the opened application and the window display.

To move the window, drag the title bar. You can also move dialog boxes by dragging their title bars.

The application control menu button is the SCADALog icon in the left corner of the title bar. When selected the following commands are displayed.

Restore Command

Use this command to return the active window to its size and position before you chose the Maximize or Minimize command.

Move Command

Use this command to display a four-headed arrow so you can move the active window or dialog box with the arrow keys. Note that this command is unavailable if you maximize the window. Using the mouse drag the window title bar to location required.

Size Command

Use this command to display a four-headed arrow so you can size the active window with the arrow keys. This command is unavailable if you maximize the window. Use the mouse to drag the size bars at the corners or edges of the window.

Minimize Command

Use this command to reduce the SCADALog window to an icon. Use the mouse by clicking the minimize icon on the title bar.

Maximize Command

Use this command to enlarge the SCADALog window to fill the available space. Use the mouse by clicking the maximize icon on the title bar; or double-click the title bar.

Close Command

Use this command to close the active window or dialog box. Double-clicking a Control-menu box is the same as choosing the Close command. If you have multiple windows open for a single document, the Close command on the document Control menu closes only one window at a time. You can close all windows at once with the Close command on the File menu. Keyboard keys CTRL+F4 closes a document window and ALT+F4 closes the SCADALog window or dialog box

Tool Bar

The toolbar is displayed across the top of the application window, below the menu bar. The toolbar provides quick mouse access to many tools used in SCADALog.

To hide or display the Toolbar, choose **Toolbar** from the **View** menu.

The following commands and functions are displayed on the Toolbar.

Create a new file

Open an existing file. SCADALog displays the Open dialog box, in which you can locate and open the desired file.

Save the active file with its current name. If you have not named the document, SCADALog displays the Save As dialog box.

Print data from the active view.

View data, as it would be printed.

Edit data log configuration.

Read Logs from Controller.

Show Log 1 in the current view.

Show Log 2 in the current view.

Show Log 3 in the current view.

Show Log 4 in the current view.

Show Log 5 in the current view.

Show Log 6 in the current view.

Show Log 7 in the current view.

Show Log 8 in the current view.

Show Log 9 in the current view.

Show Log 10 in the current view.

Show Log 11 in the current view.

Show Log 12 in the current view.

Show Log 13 in the current view.

Show Log 14 in the current view.

Show Log 15 in the current view.

Show Log 16 in the current view.

The toolbar may:

- remain stationary along one side of its parent window;
- be dragged and docked, or attached, by the user to any side or sides of the parent window you specify;
- be floated, or detached from the frame window, in its own mini-frame window so the user can move it around to any convenient position; and
- be re-sized while floating.

To move the toolbar, click on the background of the toolbar. Drag the toolbar to the new location and release the mouse button.

Status Bar

The Status Bar is displayed across the bottom of the application window. The left area of the status bar describes actions of menu items as you use the arrow keys to navigate through menus. It also shows messages that describe the actions of toolbar buttons as you depress

them, before releasing them. If after viewing the description of the toolbar button command you wish not to execute the command, then release the mouse button while the pointer is off the toolbar button.

The right areas of the status bar indicate which of the following keys are latched down:

CAP Indicates the Caps Lock key is latched down.

NUM Indicates the Num Lock key is latched down.

SCRL Indicates the Scroll Lock key is latched down.

To hide or display the Status Bar, choose **Status Bar** from the **View** menu.

Menu Bar

The menu bar is displayed across the top of the application window, below the title bar. The menu bar provides access to all commands for control of the opened application and the window display.

To move the window, drag the title bar. You can also move dialog boxes by dragging their title bars.

The application control menu button is the SCADALog icon in the left corner of the menu bar. When selected the following commands are displayed.

Restore Command

Use this command to return the active window to its size and position before you chose the Maximize or Minimize command.

Move Command

Use this command to display a four-headed arrow so you can move the active window or dialog box with the arrow keys. Note that this command is unavailable if you maximize the window. Using the mouse drag the window title bar to location required.

Size Command

Use this command to display a four-headed arrow so you can size the active window with the arrow keys. This command is unavailable if you maximize the window. Use the mouse to drag the size bars at the corners or edges of the window.

Minimize Command

Use this command to reduce currently active window to an icon. Use the mouse by clicking the minimize icon on the title bar.

Maximize Command

Use this command to enlarge the currently active window to fill the available space. Use the mouse by clicking the maximize icon on the title bar; or double-click the title bar.

Close Command

Use this command to close the active window or dialog box. Double-clicking a Control-menu box is the same as choosing the Close command. If you have multiple windows open for a single document, the Close command on the document Control menu closes only one window at a time. You can close all windows at once with the Close command on the File menu. Keyboard keys CTRL+F4 closes a document window and ALT+F4 closes the SCADALog window or dialog box

Next Window Command

Use this command to switch to the next open document window. SCADALog determines which window is next according to the order in which you opened the windows. Use the keyboard keys CTRL+F6.

Refer to the ***Menu Commands*** section for more information.

Menu Commands

The Menu Bar displays the SCADALog Menu selections available. Selecting a menu opens a list of commands available for that menu. Each of the commands is described in the following sections of this manual.

File Menu

The File commands menu contains commands to create, open and save SCADALog files. File menu commands allow data to be exported to spreadsheet files and to be printed.

New Command

Use this command to create a new SCADALog file. When a file is created all log configurations are set to default values. All logs contain no information.

Any open windows are retained. If no windows are open, one window is opened with a view of log 1.

Open Command

Use this command to open an existing SCADALog file. When the Open command is used the File Open Dialog is displayed. The following options allow you to specify which file to open.

The **Look in:** box lists the available folders and files.

The **File name:** box allows you to type or select the filename you want to open. This box lists files with the extension you select in the Files of Type box.

The **Files of type:** box lists the types of files SCADALog can open. SCADALog can open SCADALog (SLC) files.

The Open command closes all views for logs that are not configured for the file that is opened.

Only one file can be open at a time in SCADALog. To view data from more than one controller at a time, start another copy of SCADALog.

Close Command

Use this command to close all SCADALog windows for the controller. SCADALog suggests that you save changes If you close a SCADALog file without saving, you lose all configuration changes made and logs that have been read from the controller since the last time you saved it. Before closing an untitled file, SCADALog displays the **SCADALog** dialog box and suggests that you name and save the file.

Save Command

Use this command to save the SCADALog file to its current name and directory. Saving a file saves the SCADALog configuration and data logs.

When you save a file for the first time, SCADALog displays the Save As dialog box so you can name your file. If you want to change the name or directory of the file, before you save it, choose the Save As command.

Save As Command

Use this command to save and name the SCADALog file. SCADALog displays the Save As dialog box so you can name your file. The following options allow you to specify the name and location of the file you're about to save:

The **Save in:** box lists the available folders and files.

The **File name:** box allows entry of a new filename to save a file with a different name. SCADALog adds the extension you specify in the *Save As type* box.

The **Save as type:** box lists the types of files SCADALog can save. SCADALog can open Controller (TFC) files.

The **Save** button saves the file to the specified location.

The **Cancel** button closes the dialog without saving.

To save a file with its existing name and directory, use the Save command.

The data will be exported in sequence number order.

SCADALog File Types

SCADALog uses separate files for data log configuration and data. The table below indicates the file types and extensions.

File Type	File Contents	Extension
Configuration	SCADALog Configuration	SLC
Data	Logged data for view	CSV
Log Results	Results of data logging	LOG

The configuration file name is used as the base for all file names.

- The configuration file is stored as `filename.SLC`.
- The data files are stored as `filename-nn.CSV`, where nn is a number from 01 to 16.
- The log results are stored as `filename.LOG`.

Managing SCADALog Files

When copying SCADALog files from one PC to another, copy all the files for a controller.

If data logs have grown too large, move the log files to another directory. New files will be created the next time you read logs from the controller. If you export the data first, you can have easy access to the archived data from a spreadsheet and current data from SCADALog.

If you have created a copy of a SCADALog configuration for of a new controller, you can delete the logs by deleting the files with the CSV extensions.

Export command

Use the Export command to export data from any data log. Data is exported in the CSV (comma-separated values) format. This format can be read by most spreadsheet and database software. The column headings are taken from the configured titles for the data log.

Data is exported from the current window. Select the window containing the data you wish to export, then select the Export command.

The following options allow you to specify the data to export.

The **All** radio button selects all the data in the current view. This is the default button if no data is selected.

The **Selection** radio button selects the data that is currently selected in the view. This is the default button if data is selected.

Clicking the **Cancel** button or pressing the *Escape* key closes the dialog.

The **OK** button exports the selected data. It opens the **Save As** file selection dialog, with the file type CSV active.

The **Save As** file selection dialog appears for views that do not support the selection of records such as configuration views. The Save As dialog allows you to specify the file to export the data to. If the file exists, then the exported data is appended to the file.

The **OK** button in the **Save As** dialog exports the data to the selected file.

The **Cancel** button in the **Save As** dialog cancels the export command and closes all dialogs.

Print Command

Use this command to print reports from the current view. SCADALog displays the **Print** dialog box. The following options allow you to specify the printer, the print range and the number of copies.

The **Name** drop-down list box displays a list of configured printers.

The **Properties** button defines the settings for the selected printer.

The Print range radio buttons selects the data to be printed.

The **All** radio button prints all the data in the current view. This is the default button if no data is selected.

The **Pages** radio button allows the printing of selected pages.

The **Selection** radio button prints the data that is currently selected in the view. This is the default button if data is selected.

The **Number of copies** selection indicates how many copies to print.

If the printer selected in the Name box supports collating print jobs you may select **Collate**, otherwise the control is grayed.

The **OK** button prints the report.

Selecting the **Cancel** button or pressing the *Escape* key closes the dialog.

Print Preview Command

Use this command to see how your printed report will look. The command opens a special view that shows data, as they will be printed.

To preview a report from a view select the window containing the view you wish to print using selections from the **View** menu.

You can select records to print that interest you by left-clicking the mouse button on them.

A row of control buttons is available at the top of this view. These control buttons are described below.

The **Print** button prints the report as shown.

The **Next Page** button displays the next page. It is grayed if there are no more pages.

The **Prev Page** button displays the previous page. It is grayed if there are no pages before the current page.

The **Two Page** button changes the display to show two pages at a time. The *One Page* button changes the display to show one page at a time.

The **Zoom In** button enlarges the page displayed so you can see details on the report.

The **Zoom Out** button shrinks the page displayed so you see how the page is formatted.

The **Close** button closes the Print Preview view.

Print Setup Command

Use this command to define how reports are printed. The font, page headings, margins, and the size of the columns on the reports can be changed. Select from the options described below.

The **Page Headings** section selects what is printed in the header of each report page.

Selecting **Title** prints the title of the report centered on the page.

Selecting **Date and Time** prints the date and time in the upper left-hand corner of the page. The date and time are printed in the long time format defined from the Windows Control Panel.

Selecting **Page Numbers** prints “Page” and the page number in the upper right hand corner of the page.

The **Start At** edit box selects where the page numbers start.

The **Margins** section defines the page margins.

Left is the size of the left-hand margin on the page.

Right is the size of the right hand margin on the page.

Top is the size of the top margin on the page.

Bottom is the size of the bottom margin on the page.

Measurement Units is the units of measurement for the margins. It is one of Inches or mm. The units are converted into the other measurement system when this control is changed.

The selected font section defines the font used for printing reports. The currently selected font is shown.

The **Change Font** button opens a font selection dialog. The user may choose the font for printing reports. Column widths are chosen automatically using the selected font.

Select the **OK** button to use the new settings.

Select the **Cancel** button or press the *Escape* key to close the dialog.

The **Printer** button opens the Printer dialog.

The **Help** button displays help for this dialog.

Recent Files List

Use the numbers and filenames listed at the bottom of the File menu to open the last four files you closed. Choose the number that corresponds with the file you want to open.

Exit Command

Use this command to exit from SCADALog. If changes have been made to the configuration or data log files, you will be asked if you want to save them.

Edit Menu

The edit menu commands allow selected data to be copied to the clipboard. The selected data is then available for use in other applications.

Copy Command

Use this command to copy selected data onto the clipboard. This command is unavailable if the view does not contain data that can be selected. Copying data to the clipboard replaces the contents previously stored there.

Select All Command

Use this command to select all the records in the current view. This command is unavailable if the view does not contain data that can be selected.

View Menu

The view menu commands select the data that is displayed in the active window. The visibility of the Toolbar and Status Bar is controlled from the view menu.

Log 1, Log 2, … Log 16 Commands

Use these commands to change the log in the current window.

Commands for logs that are not configured in the current file are grayed.

The data log view may be modified using the following options.

Sorting Data

Clicking on the column headings will sort the table, in ascending order, according to the column selected. Clicking subsequent times on the same column toggles the sort order between descending and ascending order.

Sizing Columns

Positioning the cursor over the line separating the columns in the heading can change the column widths. The cursor changes to a vertical bar with arrows pointing left and right. Click on the line, then slide the mouse left or right. Release the mouse button when the column is the desired width.

Selecting Data

Click on any row to select it. Hold down Shift and click on any row to select the range from the currently selected row to the new row. Hold down Ctrl and click on any row to toggle the selection of that row.

Printing and Exporting Data

To print or export part of the data, select the desired rows then use the Print or Export function.

Toolbar Command

Use this command to display or hide the Toolbar, which includes buttons for some of the most common commands in SCADALog. A check mark appears next to the menu item when the Toolbar is displayed.

Status Bar Command

Use this command to display or hide the Status Bar. The Status bar appears at the bottom of the main window. It displays information about the command selected and other status information. A check mark appears next to the menu item when the Status Bar is displayed.

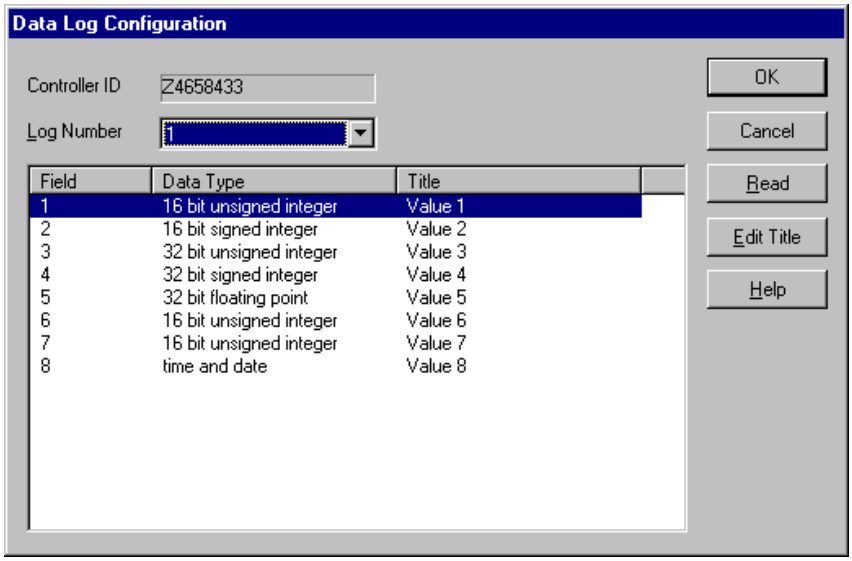
See ***Status Bar*** section for help on using the status bar.

Data Log Menu

The Data Log menu contains the commands for configuring views and reading data logs from the controller.

Configuration Command

Use this command to read data log configurations from the controller and to rename column titles on the data log view. Initially the column titles in the log are named Value 1, Value 2, etc. You can change these titles to describe the actual logged values. Each log has different titles for its columns.



The **Controller ID** shows the ID of the controller where the data logs are configured.

The **Log Number** list box selects which data log to edit. The list box below it shows the values and their names for the selected log.

The **OK** button saves the modified settings and closes the Configuration dialog.

The **Cancel** button closes the Configuration dialog and discards any changes.

The **Read** button reads all data log configuration from a controller.

The **Edit Title** button edits column titles.

The **Help** button displays help for the dialog.

Reading Configuration

Initially no columns are defined for a log. Use the **Read** button to read data log configuration from a controller, or to update the configuration with new information from the controller. The configuration is defined using TelePACE.

If the controller ID does not match the controller ID in the file, SCADALog displays the message “Error: The controller ID in the controller and file do not match.” If this occurs, close the current file, open a new file and repeat the operation.

If the configuration that is read from the controller is not compatible with data already in the logs, SCADALog will abort the read and display the message “Error: The log configuration in the controller and file do not match.” If this occurs, close the current file, open a new file and repeat the operation.

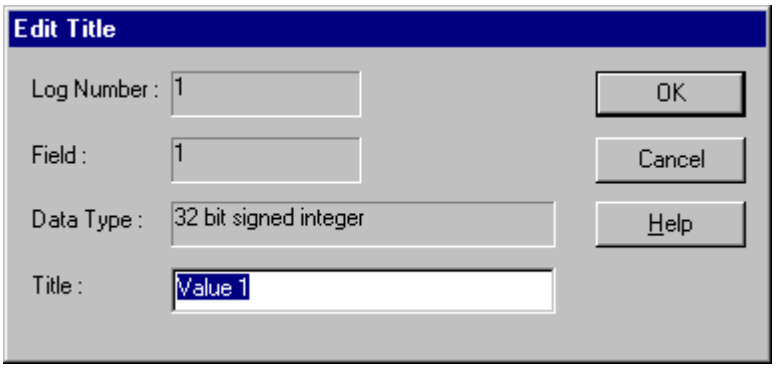
If the controller firmware does not support the DLOG element, SCADALog displays the message “Error: The controller firmware does not support the required functions”.

Editing Titles

The **Log Number** list box selects which data log to edit. Only the logs that are defined for the current controller are listed.

The titles for the selected log are displayed in a list box. Select the title you wish to edit and click on the **Edit Title** button.

The **Edit Title** button opens the following dialog. It shows the log number, field number, type of data in the column and column title.



The **Title** edit box changes the column title. Enter a title up to 16 characters in length.

The **OK** button saves the modified settings and closes the Configuration dialog.

The **Cancel** button closes the Configuration dialog and discards any changes.

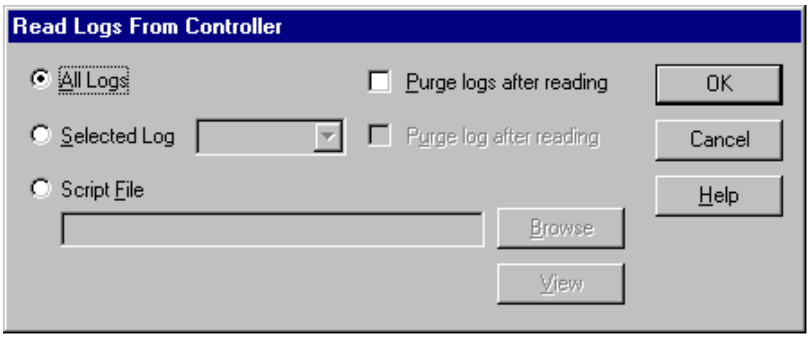
The **Help** button displays help for the dialog.

Communication Progress Dialog

The *Communication Progress* dialog is displayed when SCADALog is reading configuration data from the controller. The dialog indicates the operation occurring in the dialog text.

Read Logs Command

Use this command to read data logs from the controller. This command is disabled when the PC Communication Settings are set to *Dial Up* and the controller is not connected.



The radio buttons determine which log is read from the controller.

- Select **All Logs** to read all logs from the controller. This button is selected by default.
- Select **Selected Log** to read a single log. Select the log to be read from the list box. Only the logs that are configured in the controller are read.
- Select **Script File** to manually execute a pre-configured SCADALog command script file. The file name of the script file to be executed can be entered into the **Script File** edit box or the **Browse** command can be used to search for an existing script file. The script file displayed in the **Script File** edit box can be viewed by selecting the **View** command. A list box is opened and a list of commands displayed.

The **Purge logs after reading** check box selects if readings are removed from the data logs in the controller after they are read. If you select this option, be sure to save the SCADALog file afterwards. Otherwise the data will be lost. This option is not selected by default.

The **OK** button reads the selected logs from the controller or executes the script command file and closes the dialog.

The **Cancel** button closes the dialog.

The **Help** button displays help for the dialog.

If the controller ID in the file and controller do not match, SCADALog displays the message “Error: The controller ID in the controller is different than the open file”.

If the configuration in the file and controller do not match, SCADALog displays the message “Error: The log configuration in the controller is different than the open file”.

If no data logs are configured in the controller, SCADALog displays the message “Error: The log configuration in the controller is different than the open file”.

The *All Logs* radio button will be selected. The *Purge log after reading* control will be unchecked.

Notes

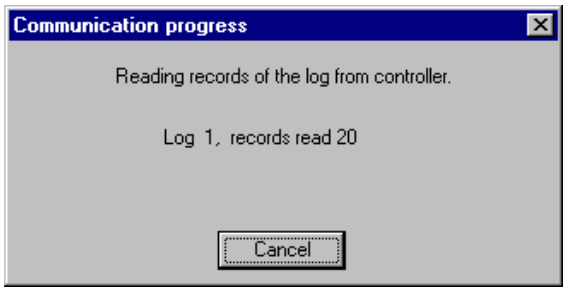
Each record in a log has a sequence number. If SCADALog reads a record from a controller with the same sequence number as one already in the file, it is not added to the file.

This number is unique under most conditions. It will repeat after 4,294,967,295 records have been recorded to the log. This will occur once every 136 years if records are recorded once per second. In this case, create a new SCADALog file to read and save the records.

The sequence number is reset to zero when a log is deleted or the controller is initialized. In these cases you must create a new SCADALog file to read and save the records.

Communication Progress Dialog

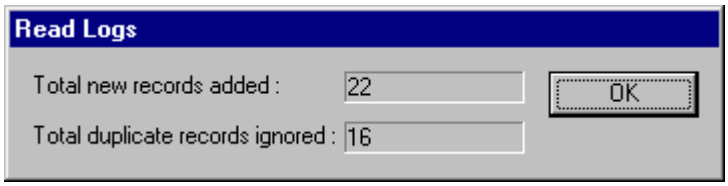
The *Communication Progress* dialog is displayed when SCADALog is reading data logs from the controller. The dialog indicates the operation occurring in the dialog text.



Note: If data is being logged (grab data input on DLOG element) at a faster rate than being read from the Controller with SCADALog, then SCADALog will continuously read data. In this case, selecting **Cancel** on the *Communication Progress* dialog will stop the read operation and update the log windows with any data that was read.

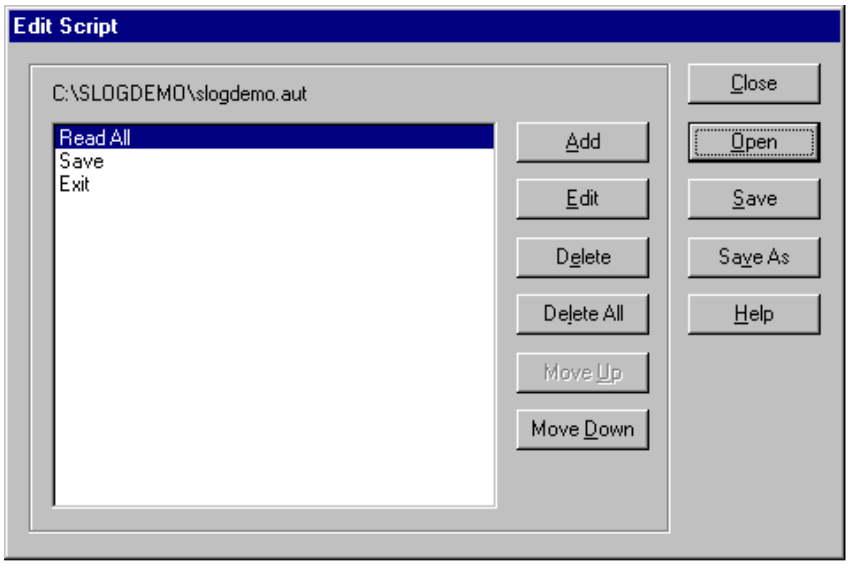
Read Logs Dialog

The Read Logs dialog is displayed when all logs have been read from the controller. The dialog indicates the total number of new records added and the total number of duplicate records ignored.



Edit Script Command

Use this command to edit SCADALog script commands. Scripts are text files that contain a list of SCADALog commands. The script files can be executed either manually, (under direct control of the user) or automatically, (under control of another program).



This command edits and saves script files that can be accessed by all SCADALog applications. The script file is not related to the currently open SCADALog application. The script command line determines which SCADALog application executes which script file.

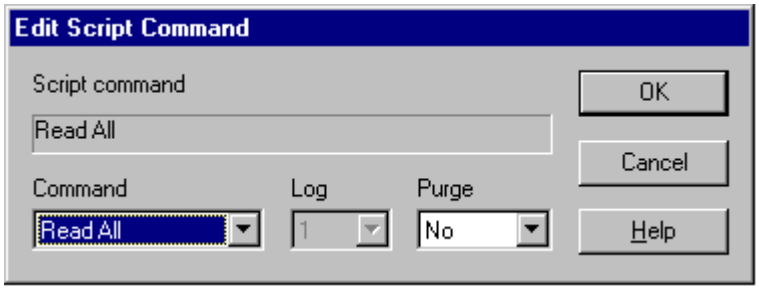
The Edit Script dialog consists of the currently opened script filename, a list of commands configured in the opened script, script configuration command buttons and Edit Script dialog command buttons.

The currently opened script filename displays the filename of the currently opened script file. The format is `X:\….…\filename.aut`, where `X` is the disk drive letter assignment, `\……\` is the subdirectory or subdirectories where the script file is located, `filename` is the script filename and `.aut` is the filename extension. In the above example the opened script file is called `slogdemo.aut` and is located on the `C:` drive in the `SLOGDEMO` subdirectory. When the Edit Script command is selected, a script file is not yet open. The filename is displayed as `[untitled file]` in this case.

The configured command list displays the commands that have be configured for the open script file. These commands are configured with the **Add** and **Edit** commands and are executed in the order that they appear in the command list. Listed commands may be acted upon by selecting the particular command with the cursor and then executing one of the script configuration commands.

The script configuration commands are used to configure the script file.

- The **Add** command opens the Edit Script Command dialog for the configuring of a new script command.



The Script command field displays the currently selected script command as determined by the Command field.

The **Command** drop down menu displays the list of available commands for selection. Selecting the arrow icon with the cursor will make these commands visible for selecting. The commands are:

- **Read All**. Use this command to read all configured data logs from the controller.
- **Read Log**. Use this command to read only one data log from the controller. The log number is specified in the Log field.
- **Save**. Use this command to save the SCADALog application and to automatically save the logged data to csv files.
- **Exit**. Use this command to close SCADALog.

The **Log** drop down menu displays the log number to be read when the Read Log command has been selected. This field is grayed for all other commands.

The **Purge** drop down menu displays the log-purge mode for the Read and Read All commands. Selecting Yes configures SCADALog to purge the log/logs after they have been read. Selecting No configures SCADALog to not purge the log/logs after they have been read. This field is grayed for the Save and Exit commands.

The **OK** button retains the settings for the current script command and closes the Edit Script Command dialog.

The **Cancel** button discards any new changes to the current script command and closes the Edit Script Command dialog.

The **Help** button displays help for the dialog.

- The **Edit** command opens the Edit Script Command dialog to edit the currently selected command. This command will appear in both the Script command and Command fields in the Edit Script Command dialog. See the **Add** command for details on the Edit Script Command dialog. This command is grayed if the command list is empty.
- The **Delete** command removes the currently selected command from the command list. This command is grayed if the command list is empty.
- The **Delete All** command removes all commands from the command list. This command is grayed if the command list is empty.
- The **Move Up** command moves the currently selected command up one position in the command list. This command is grayed if the command list is empty or if top command in the list is selected.
- The **Move Down** command moves the currently selected command down one position in the command list. This command is grayed if the command list is empty or if the bottom command in the list is selected.

The edit script dialog commands are used to manage the script files for editing.

The **Close** command closes the Edit Script dialog. If a script file has been configured but not yet saved, a dialog will appear prompting the user to save the changes to a script file. The Save As dialog is displayed. (see the **Save As** command section for more information.)

The **Open** command opens an existing script file for editing. If the current command list has not yet been saved to a script file, a dialog will appear prompting the user to save the changes to a script file. When the **Open** command is used the Open dialog is displayed. The following options allow the user to specify which file to open.

- The **Look in:** box lists the available folders and files.
- The **File name:** box allows you to type or select the filename you want to open. This box lists files with the script file extension “aut”.
- The **Files of type:** box displays the only type of file that this command can open: SCADALog script files, with the file extension “aut”.
- The **Open** command opens the script file that is displayed in the **File name:** box and closes the Open dialog. The commands contained in the script file are displayed in the command list.
- The **Cancel** command cancels the **Open** command and closes the Open dialog.

The **Save** command saves the currently open script file. This command is grayed if the script file has not been saved using the **Save As** command.

The **Save As** command saves the current command list to either an existing or new script file. This command is grayed if the command list is empty.

The Save As dialog is displayed with the following options to allow the user to specify the script file name.

- The **Save in:** box lists the available folders and files.
- The **File name:** box allows you to type or select the filename you want to save.

- The **Save as type:** box displays the only type of file that this command can save: SCADALog script file, with the file extension “aut”.
- The **Save** command saves the current command list to the script file specified in the **File name**: box and closes the Save dialog.
- The **Cancel** command cancels the **Save As** command and closes the Save As dialog.

The **Help** button displays help for the dialog.

Log Results Command

The **Log Results** command allows the user to set if the results of the script command execution is logged or not. When the **Log Results** menu is checked, all the results of the script-enabled SCADALog operations will be written into a log file. See the Script Log section for more information.

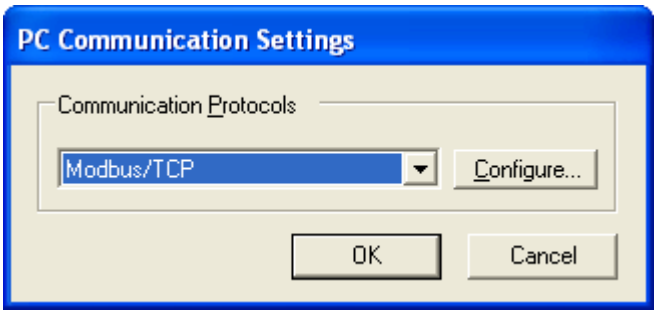
Communication Menu

The Communication menu contains the commands for configuring the communication between the Flow Computer and RealFLO.

PC Communications Settings Command

The PC Communication Settings command defines the communication protocol and communication link used for communication between the personal computer (PC) and SCADAPack or 4202 series controllers.

When the command is select the Communication Protocols Configuration dialog is displayed as shown below.



The **Communication Protocols** drop down list box presents all available communication protocols. The default protocol is Modbus RTU. Click the drop down list icon at the right of the window to display a list of available communication protocols.

- ClearSCADA
- DNP
- Modbus ASCII
- Modbus ASCII in TCP
- Modbus ASCII in UDP
- Modbus RTU
- Modbus RTU in TCP
- Modbus RTU in UDP
- Modbus/TCP
- Modbus/UDP

- Modbus/USB
- SCADAServer

The **Configure** button opens configuration dialog for the selected communication protocol.

The **RealFLO Command Timeout** edit box sets the length of time, in seconds, to wait for a response to a RealFLO command. The valid range is 3 to 60 seconds and the default value is 10.

Clicking the **OK** button will make the selected protocol the active one.

Clicking the **Cancel** button abandons any and all changes made via this dialog.

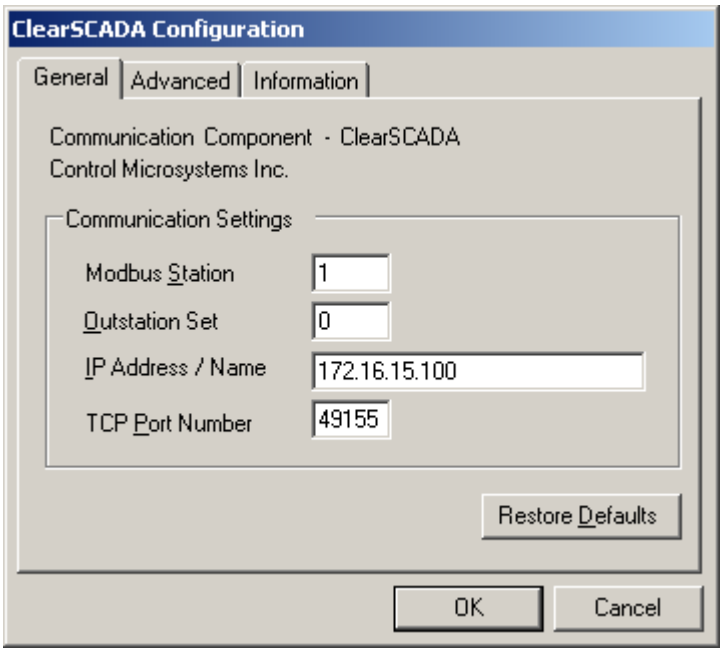
ClearSCADA

The ClearSCADA protocol driver is used for communicating with a local or remote ClearSCADA server. The ClearSCADA server will then, in turn, communicate with devices as per its configuration. The ClearSCADA protocol driver communicates with the ClearSCADA server using a TCP connection.

- To configure a ClearSCADA protocol connection, highlight **ClearSCADA** in the Communication Protocols window and click the **Configure** button. The ClearSCADA Configuration window is displayed.
- To select a configured ClearSCADA protocol connection, highlight **ClearSCADA** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When ClearSCADA protocol is selected for configuration the ClearSCADA Configuration dialog is opened with the General tab selected as shown below.



The General tab component information section contains the name of Communication Component and the author, Control Microsystems.

The **Communications Settings** grouping contains all the essential details necessary to establish communication to a device through a local or remote ClearSCADA installation.

The **Modbus Station** entry specifies the station address of the target device. Valid values are 1 to 65534.

The **Outstation Set** entry specifies the ClearSCADA outstation set to which the target device is attached. The valid range is 0 to 65535. The default value is 0.

The **IP Address / Name** entry specifies the Ethernet IP address in dotted quad notation, or a DNS host name that can be resolved to an IP address, of the PC where the ClearSCADA server is installed. The following IP addresses are not supported and will be rejected:

0.0.0.0 through 0.255.255.255

127.0.0.0 through 127.255.255.255 (except 127.0.0.1)

224.0.0.0 through 224.255.255.255

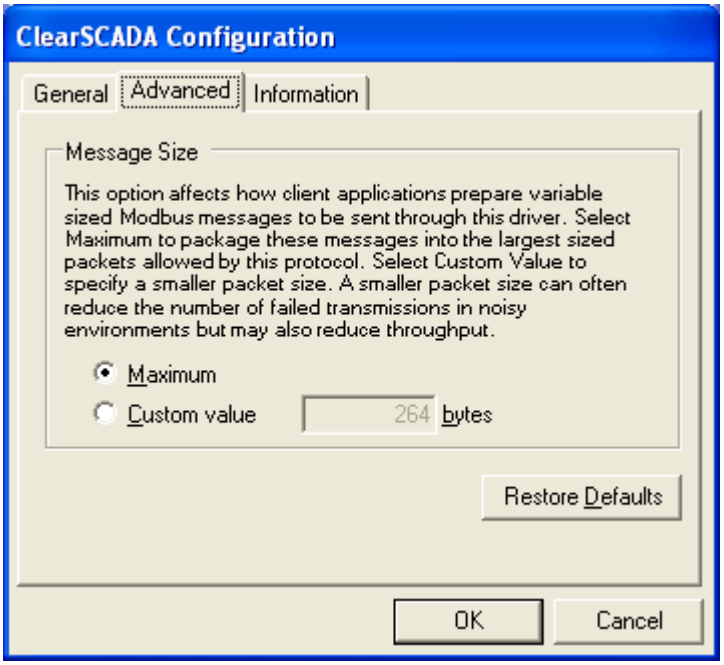
255.0.0.0 through 255.255.255.255.

The **TCP Port Number** entry specifies the TCP port on the **ClearSCADA** server. The valid range is 0 to 65535. The default value is 49155

- Click **Restore Defaults** to restore default values to all fields on this page, except for the **IP Address / Name** field. The contents of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


ClearSCADA Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
264
bytes
Restore Defaults
OK
Cancel

The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

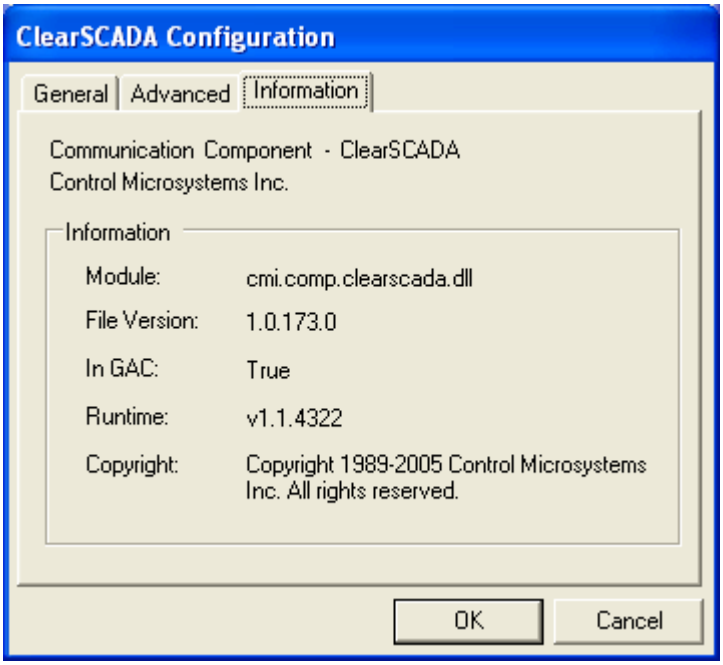
The **Custom Value** selection specifies a custom value for the message size. This value will indicate to the host application to package messages to be no larger than what is specified, if it is possible. Allowable values range from 2-264. However, values greater that 260 will cause corrupted logs to be returned by SCADALog.

NOTE: The packet size should be less than or equal to 260 bytes.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

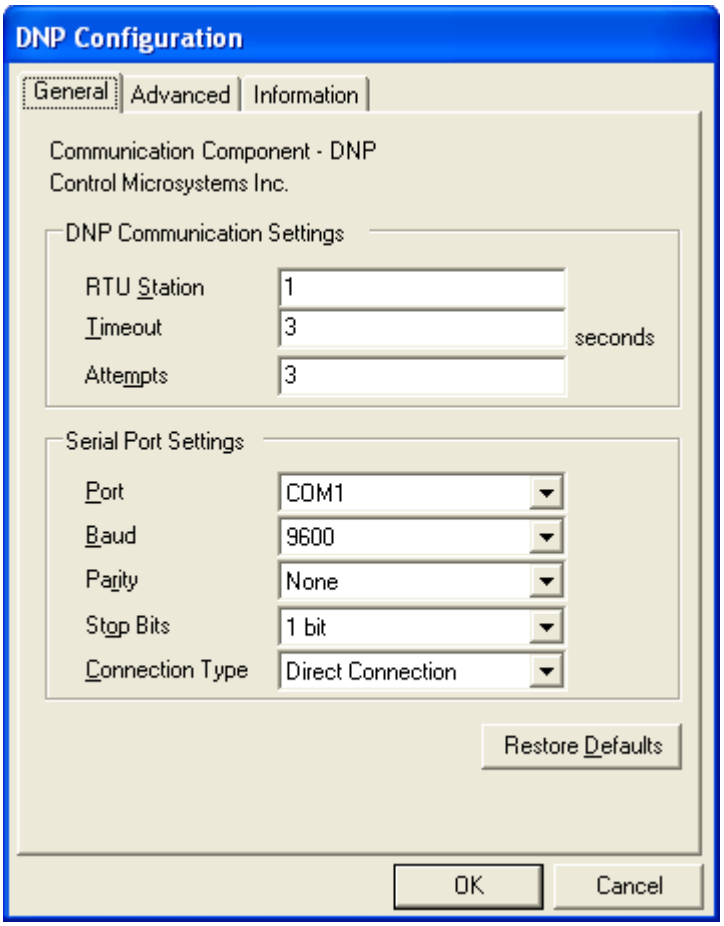
DNP

The DNP protocol driver is used to communicate over a serial DNP network to SCADAPack controllers configured for DNP communication.

- To configure a DNP protocol connection, highlight **DNP** in the Communication Protocols window and click the **Configure** button. The DNP Configuration window is displayed.
- To select a configured DNP protocol connection, highlight **DNP** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When DNP is selected for configuration the DNP Configuration dialog is opened with the General tab selected as shown below.



The General tab component information section contains the name of Communication Component and the author, Control Microsystems.

The **DNP Communication Settings** logical grouping contains DNP specific communication settings including the DNP Station address, the timeout interval as well as the number of attempts.

The **RTU Station** parameter sets the target **DNP** station number. Valid entries are 0 to 65519. The default address is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

This **Serial Port Settings** grouping contains details directly related to the PC's communication port including the port number, the baud rate, parity and stop bit settings.

The **Port** parameter specifies the PC serial port to use. The DNP driver determines what serial ports are available on the PC and presents these in the drop-down menu list. The

available serial ports list will include any USB to serial converters used on the PC. The default value is the first existing port found by the driver.

The **Baud** parameter specifies the baud rate to use for communication. The menu list displays selections for 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, and 57600. The default value is 9600.

The **Parity** parameter specifies the type of parity to use for communication. The menu list displays selections for none, odd and even parity. The default value is None.

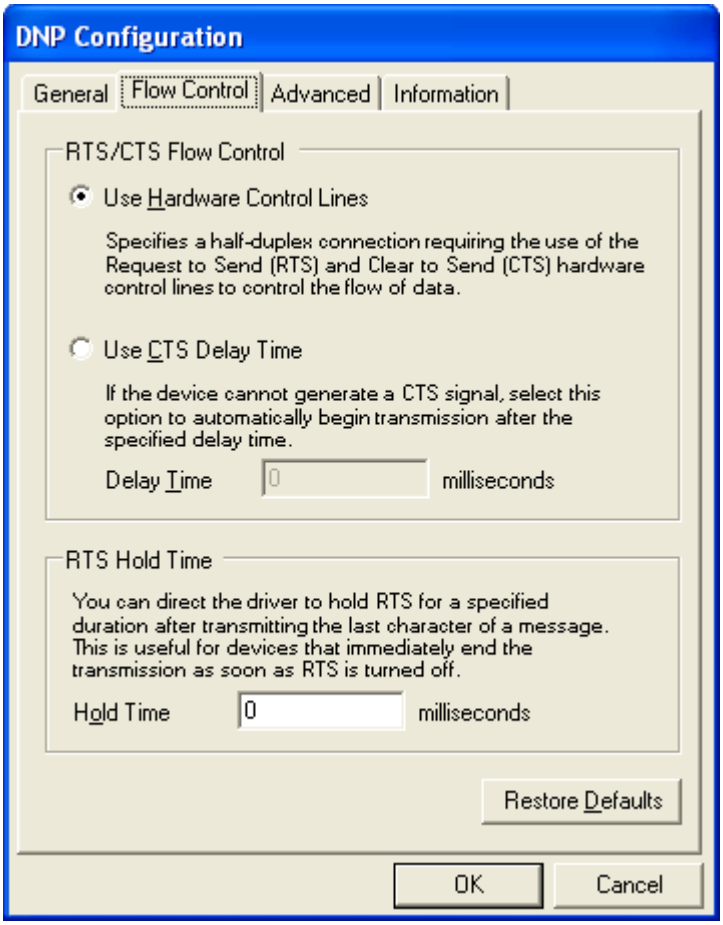
The **Stop Bits** parameter specifies the number of stop bits to use for communication. The menu list displays selections for 1 and 2 stop bits. The default value is 1 bit.

The **Connection Type** parameter specifies the serial connection type. The DNP driver supports direct serial connection with no flow control, Request-to-send (RTS) and clear-to-send (CTS) flow control and PSTN dial-up connections. The menu list displays selections for Direct Connection, RTS/CTS Flow Control and Dial Up Connection. The default selection is Direct Connection.

- Select **Direct Connection** for RS-232 for RS-485 connections that do not require the hardware control lines on the serial ports.
- Select **RTS/CTS Flow Control** to communicate over radio or leased-line networks using modems that require RTS/CTS handshaking. Selecting RTS/CTS Flow Control adds a new tab, Flow Control, to the DNP Configuration dialog. Refer to the Flow Control Parameters section below for configuration details.
- Select **Dial Up Connection** to communication over dial up modems. Selecting Dial Up Connection adds a new tab, Dial Up, to the DNP Configuration dialog. Refer to the Dial Up Parameters section below for configuration details.
- Click **Restore Defaults** to restore default values to all fields on this page.

Flow Control Parameters

Flow Control parameters are used to configure how RTS and CTS control is used. When RTS/CTS Flow Control is selected for Connection Type the Flow Control tab is added to the DNP Configuration dialog. When the Flow Control tab heading is clicked the Flow Control dialog is opened as shown below.


DNP Configuration
General
Flow Control
Advanced
Information
RTS/CTS Flow Control
Use Hardware Control Lines
Specifies a half-duplex connection requiring the use of the Request to Send (RTS) and Clear to Send (CTS) hardware control lines to control the flow of data.
Use CTS Delay Time
If the device cannot generate a CTS signal, select this option to automatically begin transmission after the specified delay time.
Delay Time
0
milliseconds
RTS Hold Time
You can direct the driver to hold RTS for a specified duration after transmitting the last character of a message. This is useful for devices that immediately end the transmission as soon as RTS is turned off.
Hold Time
0
milliseconds
Restore Defaults
OK
Cancel

RTS/CTS Flow Control

The **RTS/CTS Flow Control** grouping contains two mutually exclusive options, Use Hardware Control Lines and Use CTS Delay Time. These options enable the driver to communicate over radio or leased-line networks using modems that require RTS/CTS handshaking.

The **Use Hardware Control Lines** option specifies a half-duplex connection requiring the use of the Request to Send (RTS) and Clear to Send (CTS) hardware control lines to control the flow of data. This selection is used with radios and dedicated telephone line modems. The driver turns on the RTS signal when it wants to transmit data. The modem or other device then turns on CTS when it is ready to transmit. The driver transmits the data, and then turns off the RTS signal. This selection is mutually exclusive of the Use CTS Delay Time selection described below. This is the default selection.

The **Use CTS Delay Time** option is selected if the device cannot generate a CTS signal. The driver will assert RTS then wait the specified Delay Time, in milliseconds, before proceeding. This option is mutually exclusive with the Use Hardware Control Lines selection described above.

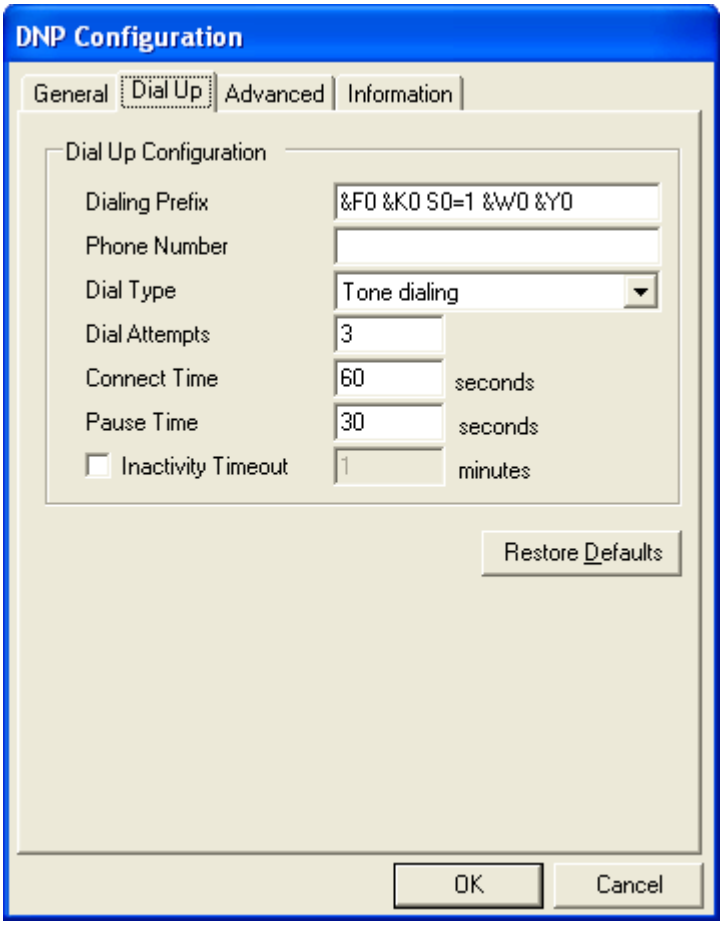
The **Delay Time** parameter sets the time in milliseconds that the driver will wait after asserting RTS before proceeding. The value of this field must be smaller than the Time Out value set in the General parameters dialog. For example, if the Timeout value is set to 3 seconds, the CTS Delay Time can be set to 2999 milliseconds or less. The minimum value for this field is 0 milliseconds. The value is initially set to 0 by default.

The **Hold Time** parameter specifies the time, in milliseconds, that the driver will hold RTS after the last character is transmitted. This is useful for devices that immediately end transmission when RTS is turned off. The value of this field must be smaller than the Time Out value set in the General parameters dialog. For example, if the Timeout value is set to 3 seconds, the CTS Delay Time can be set to 2999 milliseconds or less. The minimum value for this field is 0 milliseconds. The value is initially set to 0 by default.

- Click **Restore Defaults** to restore default values to all fields on this page.

Dial Up Parameters

Dial Up parameters are used to configure a dial up connection. When Dial Up is selected for Connection Type the Dial Up tab is added to the DNP Configuration dialog. When the Dial Up tab heading is clicked the Dial Up dialog is opened as shown below.



The **Dialing Prefix** parameter specifies the commands sent to the modem before dialing. A maximum of 32 characters can be entered. All characters are valid. The default value is "&F0 &K0 S0=1 &W0 &Y0".

The **Phone Number** parameter specifies the telephone number of the remote controller. A maximum of 32 characters can be entered. All characters are valid. This field's default value is blank.

The **Dial Type** parameter specifies the dialing type. Valid values are Pulse and Tone. The default value is Tone.

The **Dial Attempts** parameter specifies how many dialing attempts will be made. Valid values are 1 to 10. The default value is 1.

The **Connect Time** parameter specifies the amount of time in seconds the modem will wait for a connection. Valid values are 6 to 300. The default value is 60.

The **Pause Time** parameter specifies the time in seconds between dialing attempts. Valid values are 6 to 600. The default value is 30.

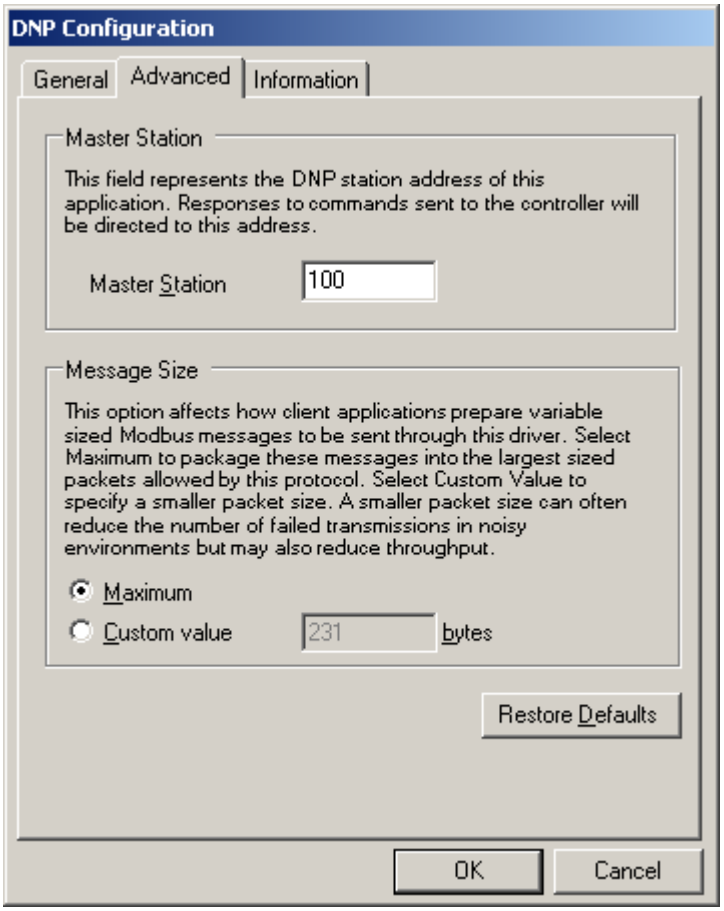
Check the **Inactivity Timeout** check box to automatically terminate the dialup connection after a period of inactivity. The Inactivity Time edit box is enabled only if this option is checked. The default state is checked.

Enter the inactivity period, in minutes, in the **Inactivity Timeout** box. The dialup connection will be terminated automatically after the specified number of minutes of inactivity has lapsed. This option is only active if the Inactivity Timeout box is checked. Valid values are from 1 to 30 minutes. The default value is 1.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the Phone Number field. The content of this field will remain unchanged.

Advanced Parameters

DNP Configuration Advanced parameters set the DNP master station address and message size control. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


DNP Configuration
General
Advanced
Information
Master Station
This field represents the DNP station address of this application. Responses to commands sent to the controller will be directed to this address.
Master Station
100
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
231
bytes
Restore Defaults
OK
Cancel

The **Master Station** parameter is the DNP station address assumed by this communication component. When this driver sends out commands, responses form the controller will be directed to this address. The default value is 100.

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

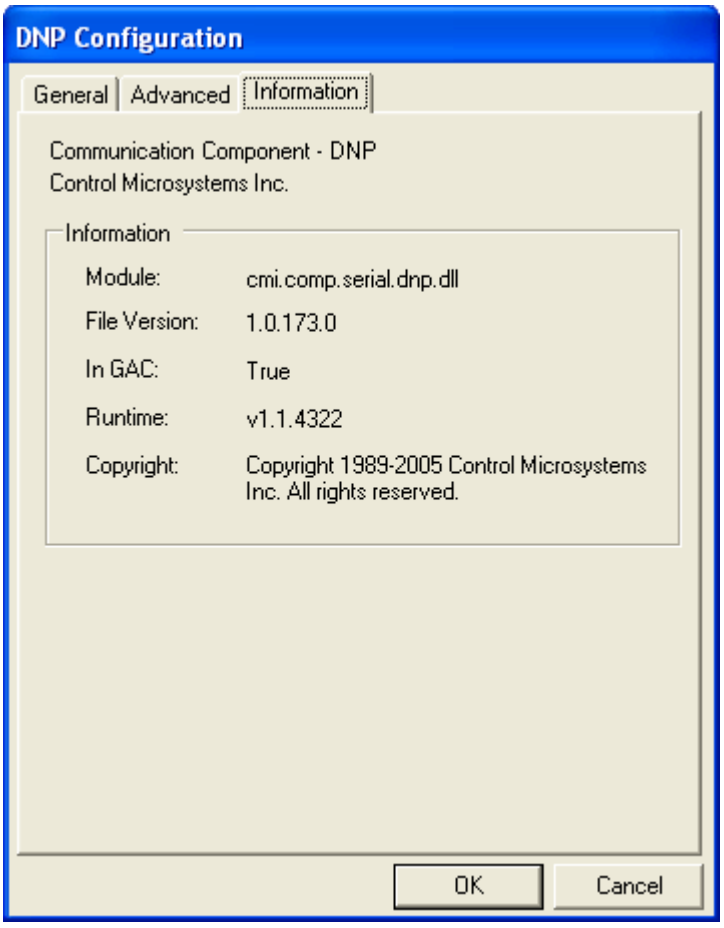
The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 231. The default value is 231.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

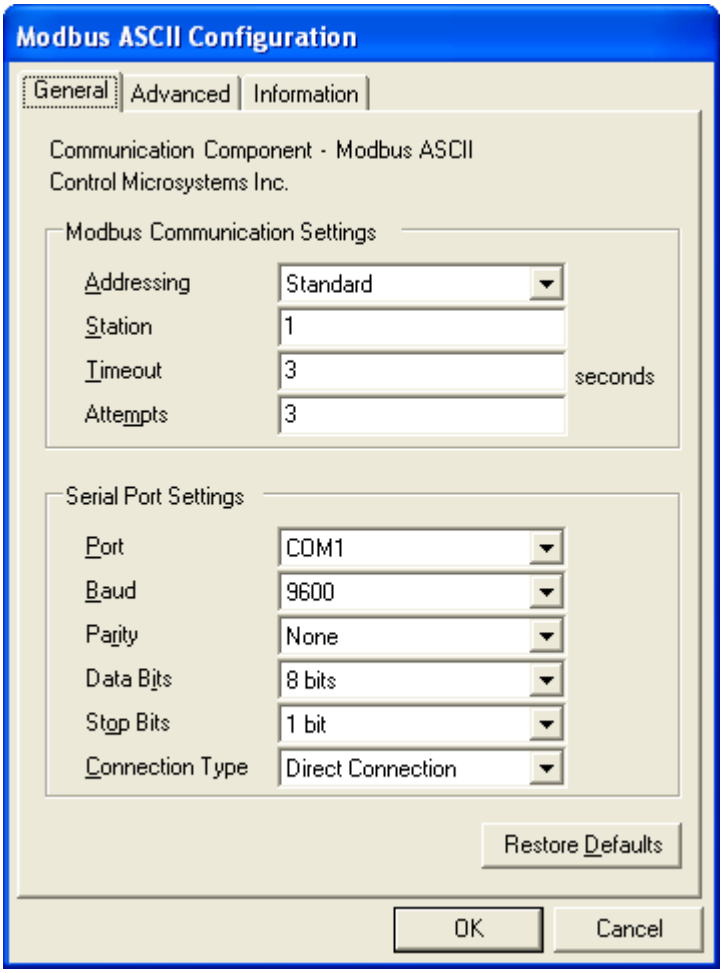
Modbus ASCII

The Modbus ASCII protocol driver is used to communicate over a serial network, using Modbus ASCII framing, to SCADAPack controllers configured for Modbus ASCII protocol.

- To configure a Modbus ASCII protocol connection, highlight **Modbus ASCII** in the Communication Protocols window and click the **Configure** button. The Modbus ASCII Configuration window is displayed.
- To select a configured Modbus ASCII protocol connection, highlight **Modbus ASCII** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus ASCII is selected for configuration the Modbus ASCII Configuration dialog is opened with the General tab selected as shown below.



The **Modbus Communication Settings** grouping contains Modbus specific communication settings including the addressing mode, the station address, the timeout interval as well as the number of attempts.

The **Addressing** parameter selects standard or extended Modbus addressing. Standard addressing allows 255 stations and is compatible with standard Modbus devices. Extended addressing allows 65534 stations, with stations 1 to 254 compatible with standard Modbus devices. The default is Standard.

The **Station** parameter sets the target station number. The valid range is 1 to 255 if standard addressing is used, and 1 to 65534 if extended addressing is used. The default is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

This **Serial Port Settings** grouping contains details directly related to the PC's communication port including the port number, the baud rate, parity and stop bit settings.

The **Port** parameter specifies the PC serial port to use. The DNP driver determines what serial ports are available on the PC and presents these in the drop-down menu list. The

available serial ports list will include any USB to serial converters used on the PC. The default value is the first existing port found by the driver.

The **Baud** parameter specifies the baud rate to use for communication. The menu list displays selections for 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, and 57600. The default value is 9600.

The **Parity** parameter specifies the type of parity to use for communication. The menu list displays selections for none, odd and even parity. The default value is None.

The **Data Bits** parameter specifies the number of data bits contained in the character frame. Valid values are for this field is 7 and 8 bits. The default value is 8 bits.

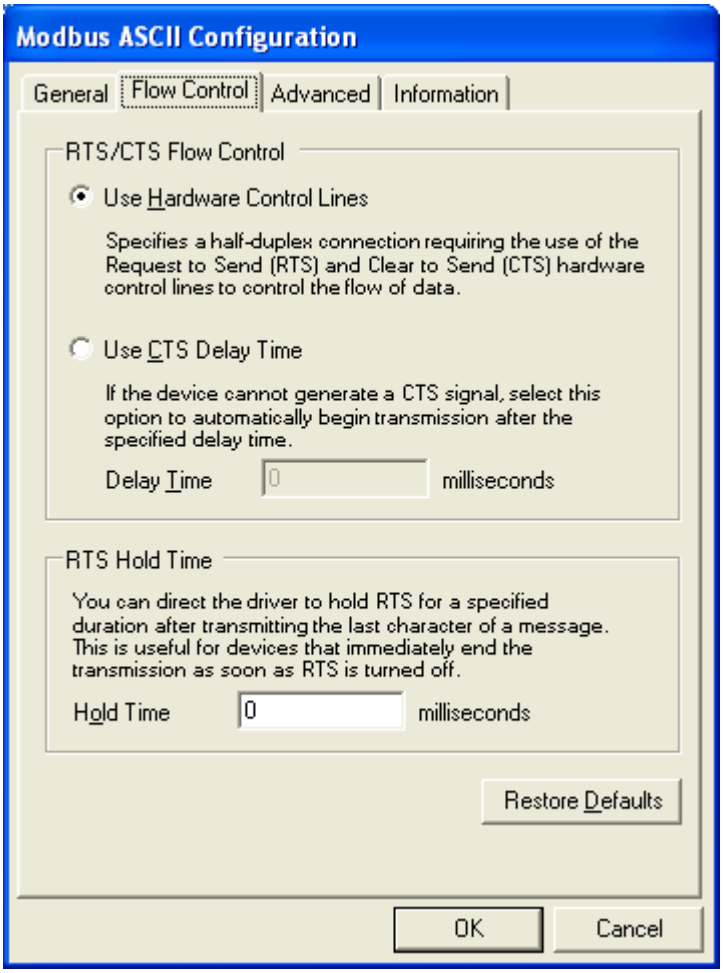
The **Stop Bits** parameter specifies the number of stop bits to use for communication. The menu list displays selections for 1 and 2 stop bits. The default value is 1 bit.

The **Connection Type** parameter specifies the serial connection type. The Modbus ASCII driver supports direct serial connection with no flow control, Request-to-send (RTS) and clear-to-send (CTS) flow control and PSTN dial-up connections. The menu list displays selections for Direct Connection, RTS/CTS Flow Control and Dial Up Connection. The default selection is Direct Connection.

- Select **Direct Connection** for RS-232 for RS-485 connections that do not require the hardware control lines on the serial ports.
- Select **RTS/CTS Flow Control** to communicate over radio or leased-line networks using modems that require RTS/CTS handshaking. Selecting RTS/CTS Flow Control adds a new tab, Flow Control, to the Modbus ASCII Configuration dialog. Refer to the Flow Control Parameters section below for configuration details.
- Select **Dial Up Connection** to communication over dial up modems. Selecting Dial Up Connection adds a new tab, Dial Up, to the Modbus ASCII Configuration dialog. Refer to the Dial Up Parameters section below for configuration details.
- Click **Restore Defaults** to restore default values to all fields on this page.

Modbus ASCII Configuration (Flow Control)

Flow Control parameters are used to configure how RTS and CTS control is used. When RTS/CTS Flow Control is selected for Connection Type the Flow Control tab is added to the Modbus ASCII Configuration dialog. When the Flow Control tab heading is clicked the Flow Control dialog is opened as shown below.


Modbus ASCII Configuration
General
Flow Control
Advanced
Information
RTS/CTS Flow Control
Use Hardware Control Lines
Specifies a half-duplex connection requiring the use of the Request to Send (RTS) and Clear to Send (CTS) hardware control lines to control the flow of data.
Use CTS Delay Time
If the device cannot generate a CTS signal, select this option to automatically begin transmission after the specified delay time.
Delay Time
0
milliseconds
RTS Hold Time
You can direct the driver to hold RTS for a specified duration after transmitting the last character of a message. This is useful for devices that immediately end the transmission as soon as RTS is turned off.
Hold Time
0
milliseconds
Restore Defaults
OK
Cancel

The **RTS/CTS Flow Control** grouping contains two mutually exclusive options, Use Hardware Control Lines and Use CTS Delay Time. These options enable the driver to communicate over radio or leased-line networks using modems that require RTS/CTS handshaking.

The **Use Hardware Control Lines** option specifies a half-duplex connection requiring the use of the Request to Send (RTS) and Clear to Send (CTS) hardware control lines to control the flow of data. This selection is used with radios and dedicated telephone line modems. The driver turns on the RTS signal when it wants to transmit data. The modem or other device then turns on CTS when it is ready to transmit. The driver transmits the data, and then turns off the RTS signal. This selection is mutually exclusive of the Use CTS Delay Time selection described below. This is the default selection.

The **Use CTS Delay Time** option is selected if the device cannot generate a CTS signal. The driver will assert RTS then wait the specified Delay Time, in milliseconds, before proceeding. This option is mutually exclusive with the Use Hardware Control Lines selection described above.

The **Delay Time** parameter sets the time in milliseconds that the driver will wait after asserting RTS before proceeding. The value of this field must be smaller than the Time Out value set in the General parameters dialog. For example, if the Timeout value is set to 3 seconds, the CTS Delay Time can be set to 2999 milliseconds or less. The minimum value for this field is 0 milliseconds. The value is initially set to 0 by default.

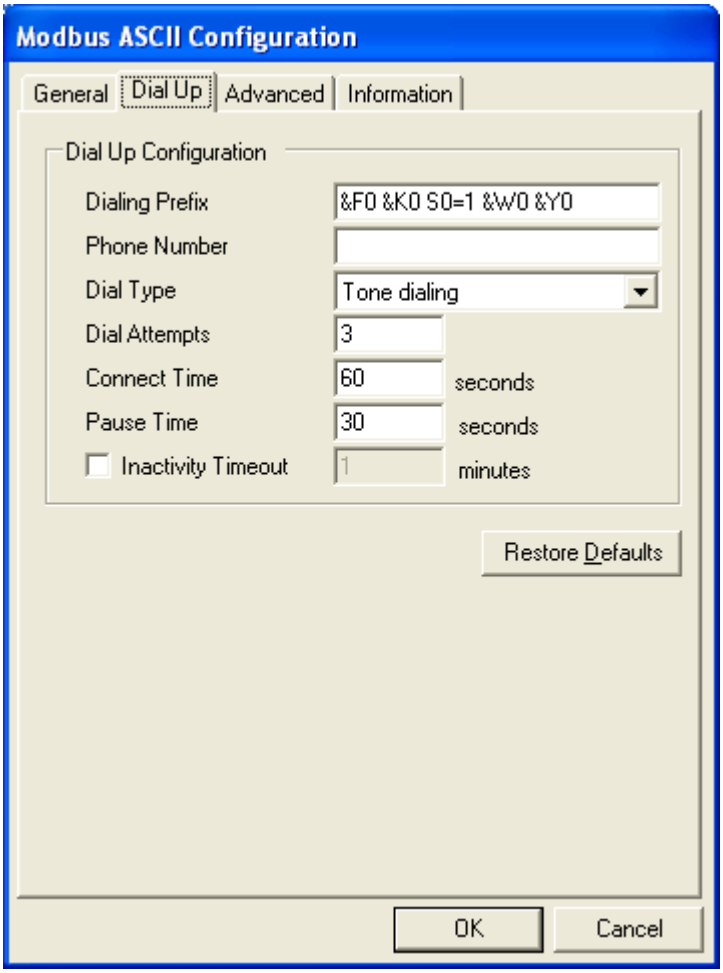
The **Hold Time** parameter specifies the time, in milliseconds, that the driver will hold RTS after the last character is transmitted. This is useful for devices that immediately end

transmission when RTS is turned off. The value of this field must be smaller than the Time Out value set in the General parameters dialog. For example, if the Timeout value is set to 3 seconds, the CTS Delay Time can be set to 2999 milliseconds or less. The minimum value for this field is 0 milliseconds. The value is initially set to 0 by default.

- Click **Restore Defaults** to restore default values to all fields on this page.

Modbus ASCII Configuration (Dial Up)

Dial Up parameters are used to configure a dial up connection. When Dial Up is selected for Connection Type the Dial Up tab is added to the Modbus ASCII Configuration dialog. When the Dial Up tab heading is clicked the Dial Up dialog is opened as shown below.



The **Dialing Prefix** parameter specifies the commands sent to the modem before dialing. A maximum of 32 characters can be entered. All characters are valid. The default value is "&F0 &K0 S0=1 &W0 &Y0".

The **Phone Number** parameter specifies the telephone number of the remote controller. A maximum of 32 characters can be entered. All characters are valid. This field's default value is blank.

The **Dial Type** parameter specifies the dialing type. Valid values are Pulse and Tone. The default value is Tone.

The **Dial Attempts** parameter specifies how many dialing attempts will be made. Valid values are 1 to 10. The default value is 1.

The **Connect Time** parameter specifies the amount of time in seconds the modem will wait for a connection. Valid values are 6 to 300. The default value is 60.

The **Pause Time** parameter specifies the time in seconds between dialing attempts. Valid values are 6 to 600. The default value is 30.

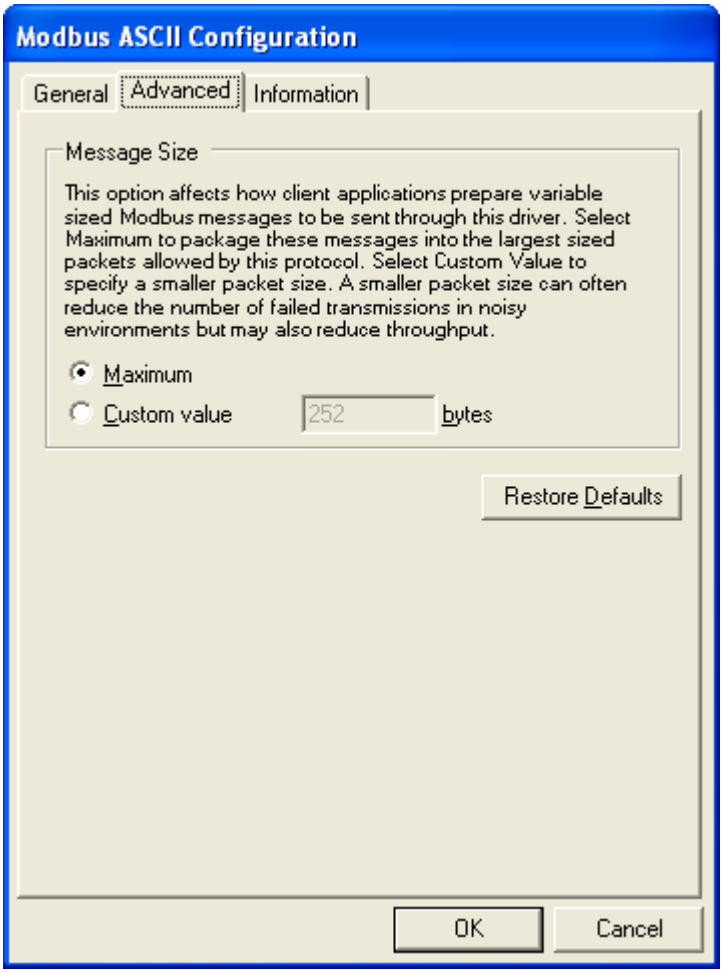
Check the **Inactivity Timeout** check box to automatically terminate the dialup connection after a period of inactivity. The Inactivity Time edit box is enabled only if this option is checked. The default state is checked.

Enter the inactivity period, in minutes, in the **Inactivity Timeout** box. The dialup connection will be terminated automatically after the specified number of minutes of inactivity has lapsed. This option is only active if the Inactivity Timeout box is checked. Valid values are from 1 to 30 minutes. The default value is 1.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the Phone Number field. The content of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


Modbus ASCII Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
252
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

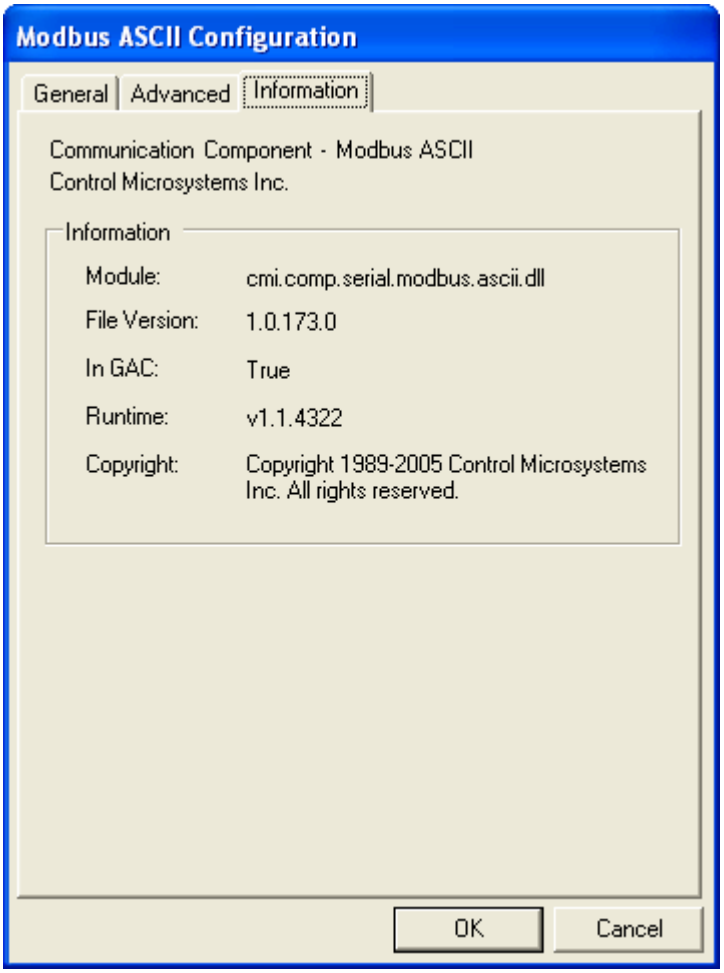
The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 250 when Addressing is set to Extended and Station is 255 or higher. When Addressing is set to Extended and Station is less than 255 valid values are 2 to 252. When Addressing is set to Standard valid values are 2 to 252.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

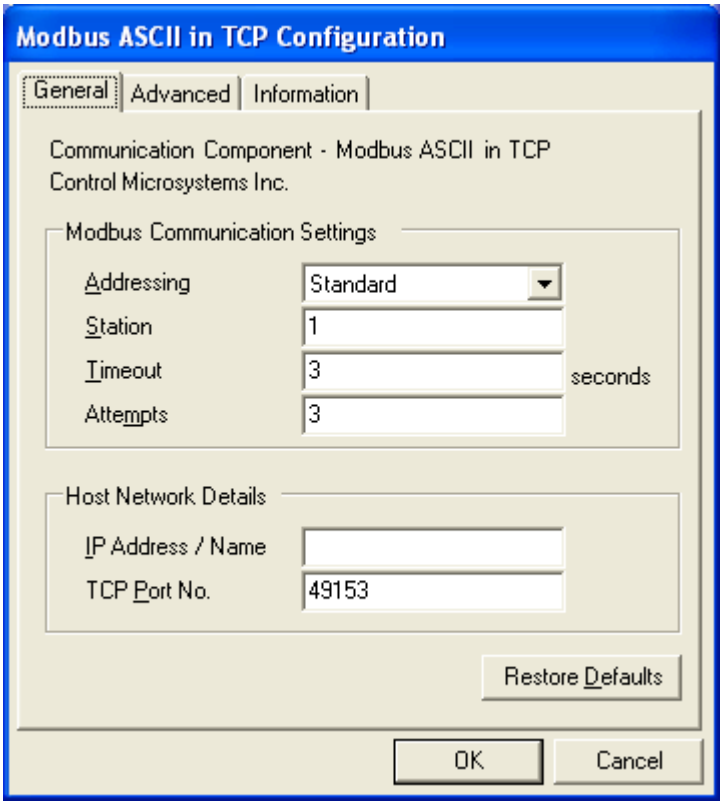
Modbus ASCII in TCP

Modbus ASCII in TCP message format is exactly same as that of the Modbus ASCII protocol. The main difference is that Modbus ASCII in TCP protocol communicates with a SCADAPack controller through the Internet and Modbus ASCII through the serial port. The Modbus ASCII in TCP protocol does not include a six-byte header prefix, as with the Modbus\TCP, but does include the Modbus ‘CRC-16’ or ‘LRC’ check fields.

- To configure a Modbus ASCII in TCP protocol connection, highlight **Modbus ASCII in TCP** in the Communication Protocols window and click the **Configure** button. The Modbus ASCII in TCP Configuration window is displayed.
- To select a configured Modbus ASCII in TCP protocol connection, highlight **Modbus ASCII in TCP** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus ASCII in TCP is selected for configuration the Modbus ASCII in TCP Configuration dialog is opened with the General tab selected as shown below.



The **Modbus Communication Settings** grouping contains Modbus specific communication settings including the addressing mode, the station address, the timeout interval as well as the number of attempts.

The **Addressing** parameter selects standard or extended Modbus addressing. Standard addressing allows 255 stations and is compatible with standard Modbus devices. Extended addressing allows 65534 stations, with stations 1 to 254 compatible with standard Modbus devices. The default is Standard.

The **Station** parameter sets the target station number. The valid range is 1 to 255 if standard addressing is used, and 1 to 65534 if extended addressing is used. The default is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

The **Host Network Details** grouping contains entries for the host's IP address or name and the TCP port on which it is listening.

The **IP Address / Name** entry specifies the Ethernet IP address in dotted quad notation, or a DNS host name that can be resolved to an IP address, of the PC where the ClearSCADA server is installed. The following IP addresses are not supported and will be rejected:

0.0.0.0 through 0.255.255.255

127.0.0.0 through 127.255.255.255 (except 127.0.0.1)

224.0.0.0 through 224.255.255.255

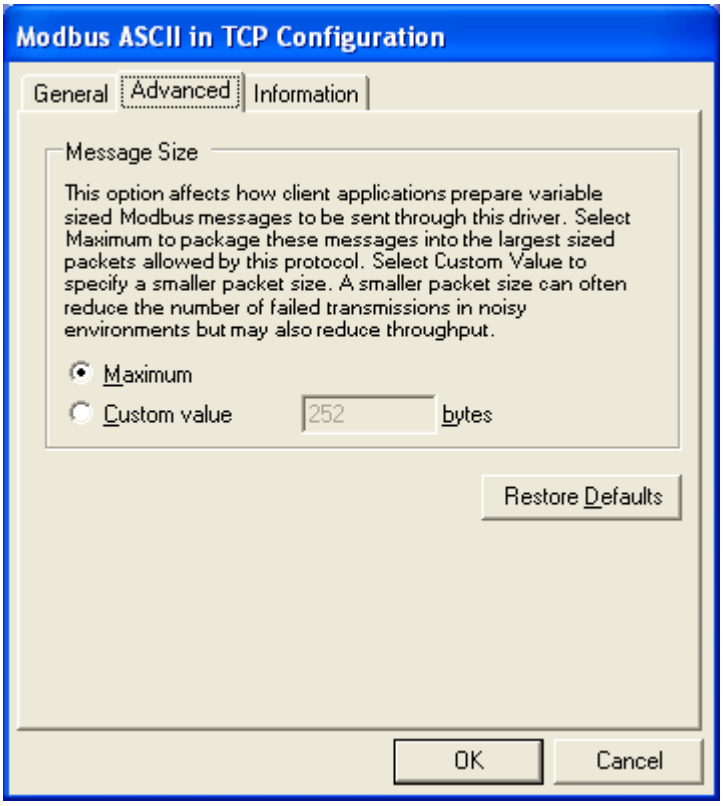
255.0.0.0 through 255.255.255.255.

The **TCP Port No.** field specifies the TCP port of the remote device. Valid values are 0 to 65535. The default value is 49153.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the IP Address / Name field. The content of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


Modbus ASCII in TCP Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
252
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

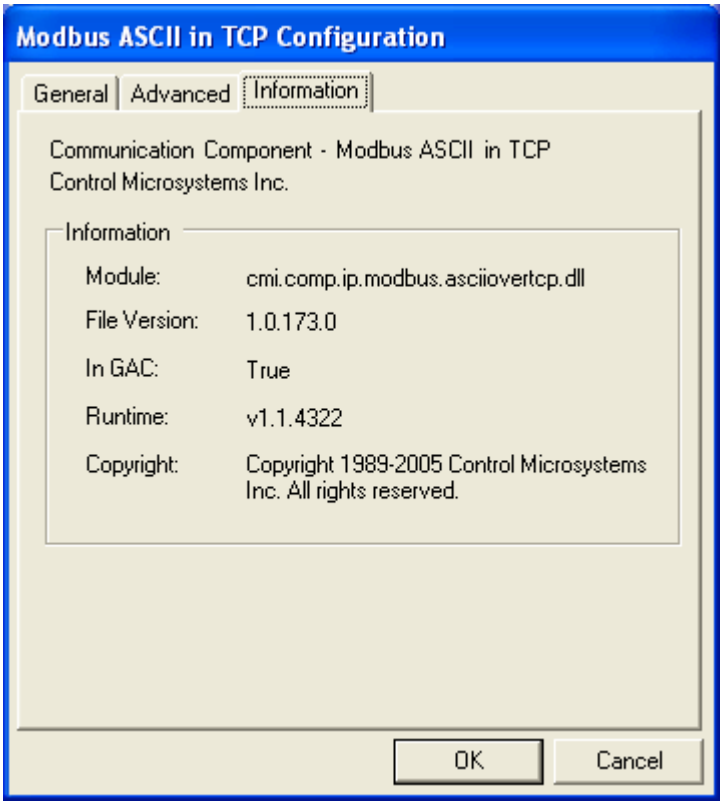
The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 250 when Addressing is set to Extended and Station is 255 or higher. When Addressing is set to Extended and Station is less than 255 valid values are 2 to 252. When Addressing is set to Standard valid values are 2 to 252.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

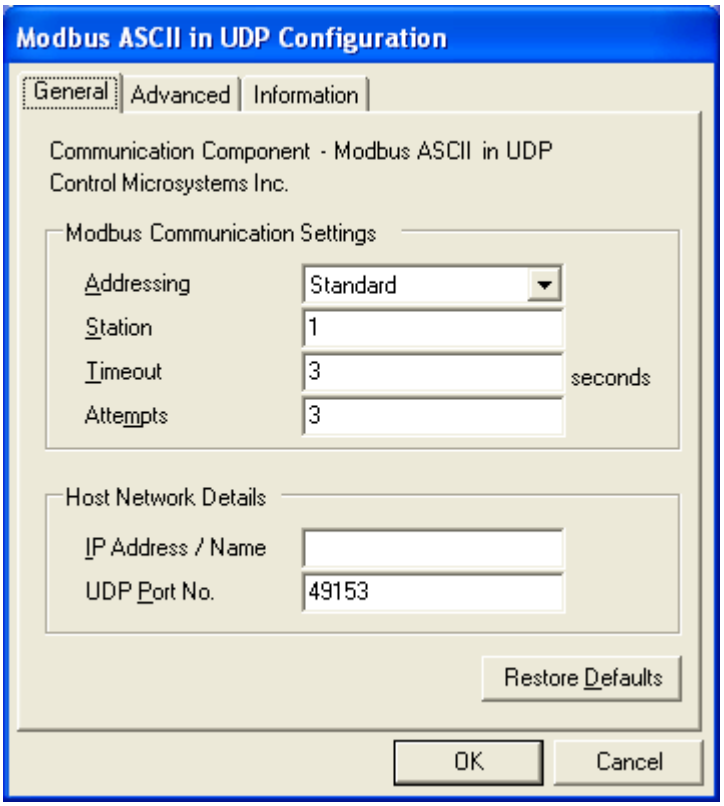
Modbus ASCII in UDP

Modbus ASCII in UDP protocol is similar to Modbus ASCII in TCP protocol. It has the same message format as the Modbus ASCII in TCP. The only difference between them is one uses TCP protocol and another uses UDP protocol.

- To configure a Modbus ASCII in TCP protocol connection, highlight **Modbus ASCII in UDP** in the Communication Protocols window and click the **Configure** button. The Modbus ASCII in UDP Configuration window is displayed.
- To select a configured Modbus ASCII in TCP protocol connection, highlight **Modbus ASCII in UDP** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus ASCII in UDP is selected for configuration the Modbus ASCII in UDP Configuration dialog is opened with the General tab selected as shown below.



The **Modbus Communication Settings** grouping contains Modbus specific communication settings including the addressing mode, the station address, the timeout interval as well as the number of attempts.

The **Addressing** parameter selects standard or extended Modbus addressing. Standard addressing allows 255 stations and is compatible with standard Modbus devices. Extended addressing allows 65534 stations, with stations 1 to 254 compatible with standard Modbus devices. The default is Standard.

The **Station** parameter sets the target station number. The valid range is 1 to 255 if standard addressing is used, and 1 to 65534 if extended addressing is used. The default is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

The **Host Network Details** grouping contains entries for the host's IP address or name and the TCP port on which it is listening.

The **IP Address / Name** entry specifies the Ethernet IP address in dotted quad notation, or a DNS host name that can be resolved to an IP address, of the PC where the ClearSCADA server is installed. The following IP addresses are not supported and will be rejected:

0.0.0.0 through 0.255.255.255

127.0.0.0 through 127.255.255.255 (except 127.0.0.1)

224.0.0.0 through 224.255.255.255

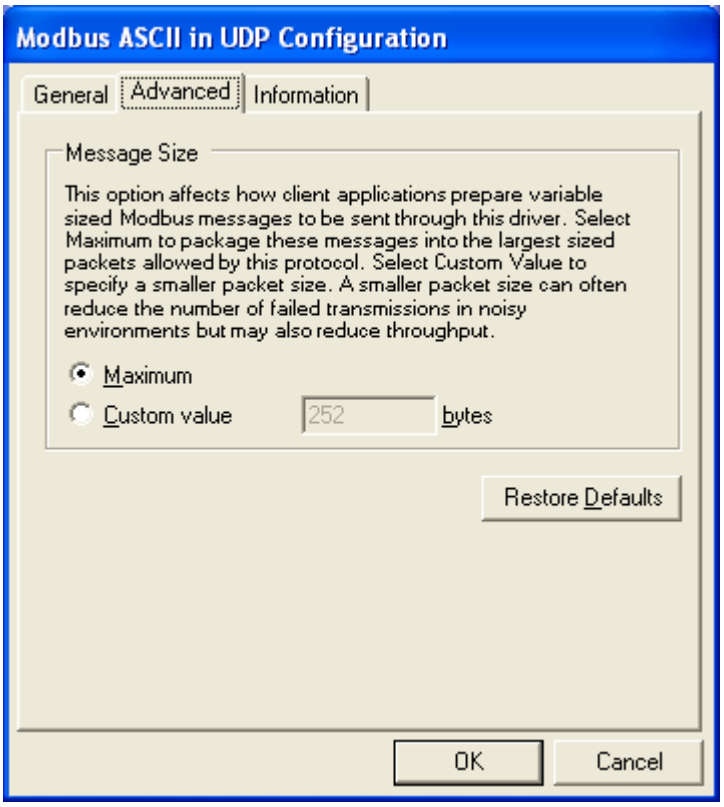
255.0.0.0 through 255.255.255.255.

The **UDP Port No.** field specifies the UDP port of the remote device. Valid values are 0 to 65535. The default value is 49153.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the IP Address / Name field. The content of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


Modbus ASCII in UDP Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
252
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

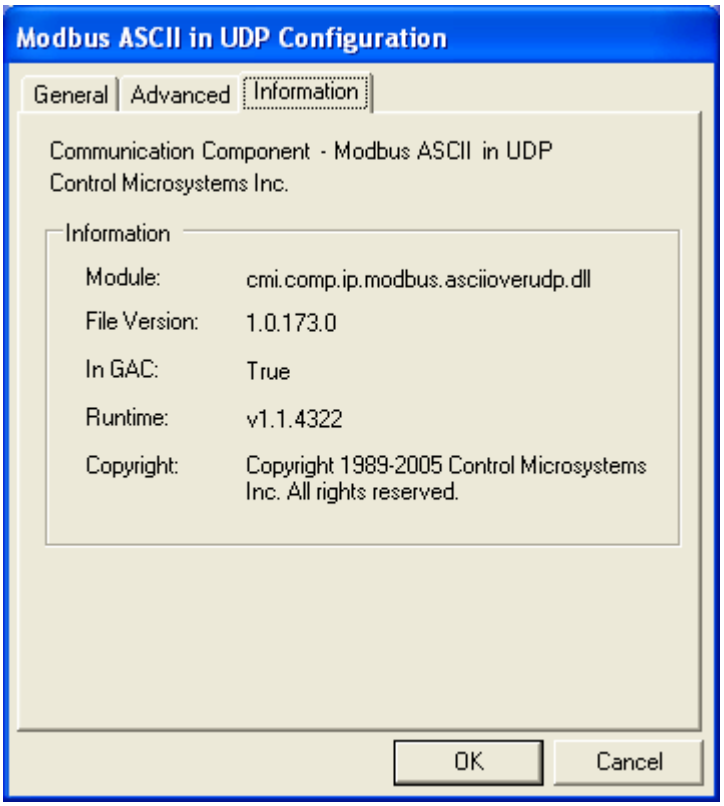
The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified,

if it is possible. Valid values are 2 to 250 when Addressing is set to Extended and Station is 255 or higher. When Addressing is set to Extended and Station is less than 255 valid values are 2 to 252. When Addressing is set to Standard valid values are 2 to 252.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

Modbus RTU

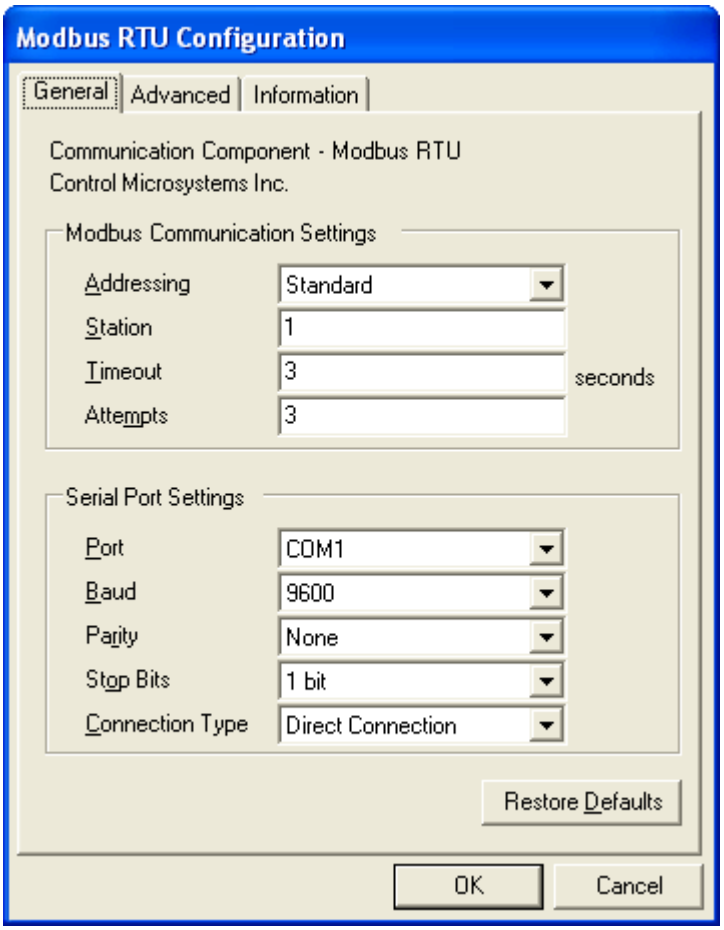
Introduction

The Modbus RTU protocol driver is used to communicate over a serial network, using Modbus RTU framing, to SCADAPack controllers configured for Modbus RTU protocol.

- To configure a Modbus RTU protocol connection, highlight **Modbus RTU** in the Communication Protocols window and click the **Configure** button. The Modbus RTU Configuration window is displayed.
- To select a configured Modbus RTU protocol connection, highlight **Modbus RTU** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus RTU is selected for configuration the Modbus RTU Configuration dialog is opened with the General tab selected as shown below.



The **Modbus Communication Settings** grouping contains Modbus specific communication settings including the addressing mode, the station address, the timeout interval as well as the number of attempts.

The **Addressing** parameter selects standard or extended Modbus addressing. Standard addressing allows 255 stations and is compatible with standard Modbus devices. Extended addressing allows 65534 stations, with stations 1 to 254 compatible with standard Modbus devices. The default is Standard.

The **Station** parameter sets the target station number. The valid range is 1 to 255 if standard addressing is used, and 1 to 65534 if extended addressing is used. The default is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

This **Serial Port Settings** grouping contains details directly related to the PC's communication port including the port number, the baud rate, parity and stop bit settings.

The **Port** parameter specifies the PC serial port to use. The DNP driver determines what serial ports are available on the PC and presents these in the drop-down menu list. The available serial ports list will include any USB to serial converters used on the PC. The default value is the first existing port found by the driver.

The **Baud** parameter specifies the baud rate to use for communication. The menu list displays selections for 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, and 57600. The default value is 9600.

The **Parity** parameter specifies the type of parity to use for communication. The menu list displays selections for none, odd and even parity. The default value is None.

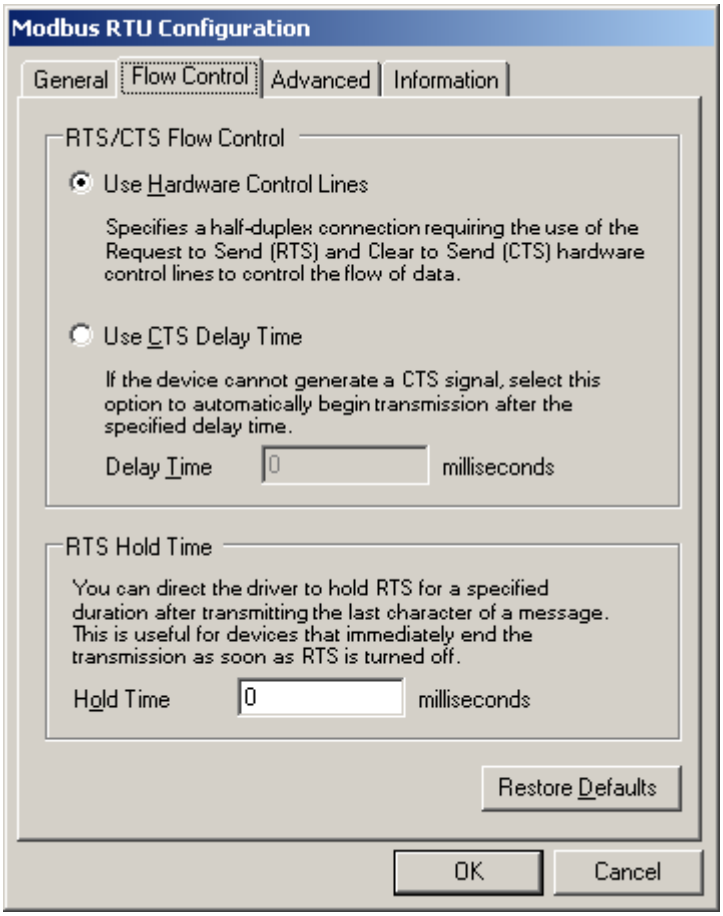
The **Stop Bits** parameter specifies the number of stop bits to use for communication. The menu list displays selections for 1 and 2 stop bits. The default value is 1 bit.

The **Connection Type** parameter specifies the serial connection type. The Modbus RTU driver supports direct serial connection with no flow control, Request-to-send (RTS) and clear-to-send (CTS) flow control and PSTN dial-up connections. The menu list displays selections for Direct Connection, RTS/CTS Flow Control and Dial Up Connection. The default selection is Direct Connection.

- Select **Direct Connection** for RS-232 for RS-485 connections that do not require the hardware control lines on the serial ports.
- Select **RTS/CTS Flow Control** to communicate over radio or leased-line networks using modems that require RTS/CTS handshaking. Selecting RTS/CTS Flow Control adds a new tab, Flow Control, to the Modbus RTU Configuration dialog. Refer to the Flow Control Parameters section below for configuration details.
- Select **Dial Up Connection** to communication over dial up modems. Selecting Dial Up Connection adds a new tab, Dial Up, to the Modbus RTU Configuration dialog. Refer to the Dial Up Parameters section below for configuration details.
- Click **Restore Defaults** to restore default values to all fields on this page.

Modbus RTU Configuration (Flow Control)

Flow Control parameters are used to configure how RTS and CTS control is used. When RTS/CTS Flow Control is selected for Connection Type the Flow Control tab is added to the Modbus RTU Configuration dialog. When the Flow Control tab heading is clicked the Flow Control dialog is opened as shown below.


Modbus RTU Configuration
General
Flow Control
Advanced
Information
RTS/CTS Flow Control
Use Hardware Control Lines
Specifies a half-duplex connection requiring the use of the Request to Send (RTS) and Clear to Send (CTS) hardware control lines to control the flow of data.
Use CTS Delay Time
If the device cannot generate a CTS signal, select this option to automatically begin transmission after the specified delay time.
Delay Time
0
milliseconds
RTS Hold Time
You can direct the driver to hold RTS for a specified duration after transmitting the last character of a message. This is useful for devices that immediately end the transmission as soon as RTS is turned off.
Hold Time
0
milliseconds
Restore Defaults
OK
Cancel

The **RTS/CTS Flow Control** grouping contains two mutually exclusive options, Use Hardware Control Lines and Use CTS Delay Time. These options enable the driver to communicate over radio or leased-line networks using modems that require RTS/CTS handshaking.

The **Use Hardware Control Lines** option specifies a half-duplex connection requiring the use of the Request to Send (RTS) and Clear to Send (CTS) hardware control lines to control the flow of data. This selection is used with radios and dedicated telephone line modems. The driver turns on the RTS signal when it wants to transmit data. The modem or other device then turns on CTS when it is ready to transmit. The driver transmits the data, and then turns off the RTS signal. This selection is mutually exclusive of the Use CTS Delay Time selection described below. This is the default selection.

The **Use CTS Delay Time** option is selected if the device cannot generate a CTS signal. The driver will assert RTS then wait the specified Delay Time, in milliseconds, before proceeding. This option is mutually exclusive with the Use Hardware Control Lines selection described above.

The **Delay Time** parameter sets the time in milliseconds that the driver will wait after asserting RTS before proceeding. The value of this field must be smaller than the Time Out value set in the General parameters dialog. For example, if the Timeout value is set to 3 seconds, the CTS Delay Time can be set to 2999 milliseconds or less. The minimum value for this field is 0 milliseconds. The value is initially set to 0 by default.

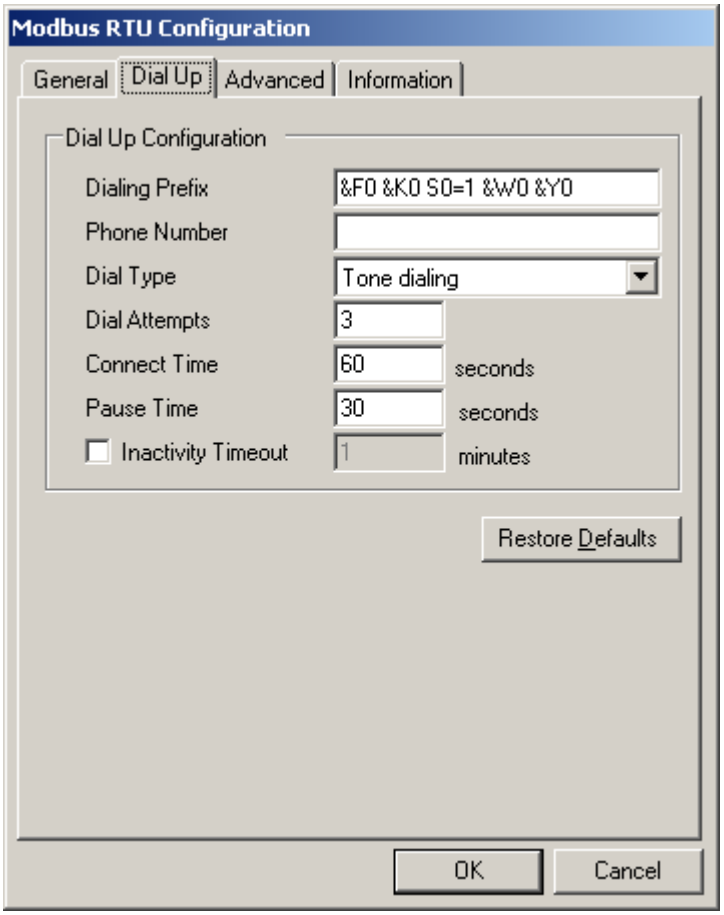
The **Hold Time** parameter specifies the time, in milliseconds, that the driver will hold RTS after the last character is transmitted. This is useful for devices that immediately end transmission when RTS is turned off. The value of this field must be smaller than the Time Out value set in the General parameters dialog. For example, if the Timeout value is set to 3

seconds, the CTS Delay Time can be set to 2999 milliseconds or less. The minimum value for this field is 0 milliseconds. The value is initially set to 0 by default.

- Click **Restore Defaults** to restore default values to all fields on this page.

Modbus RTU Configuration (Dial Up)

Dial Up parameters are used to configure a dial up connection. When Dial Up is selected for Connection Type the Dial Up tab is added to the Modbus RTU Configuration dialog. When the Dial Up tab heading is clicked the Dial Up dialog is opened as shown below.



The **Dialing Prefix** parameter specifies the commands sent to the modem before dialing. A maximum of 32 characters can be entered. All characters are valid. The default value is "&F0 &K0 S0=1 &W0 &Y0".

The **Phone Number** parameter specifies the telephone number of the remote controller. A maximum of 32 characters can be entered. All characters are valid. This field's default value is blank.

The **Dial Type** parameter specifies the dialing type. Valid values are Pulse and Tone. The default value is Tone.

The **Dial Attempts** parameter specifies how many dialing attempts will be made. Valid values are 1 to 10. The default value is 1.

The **Connect Time** parameter specifies the amount of time in seconds the modem will wait for a connection. Valid values are 6 to 300. The default value is 60.

The **Pause Time** parameter specifies the time in seconds between dialing attempts. Valid values are 6 to 600. The default value is 30.

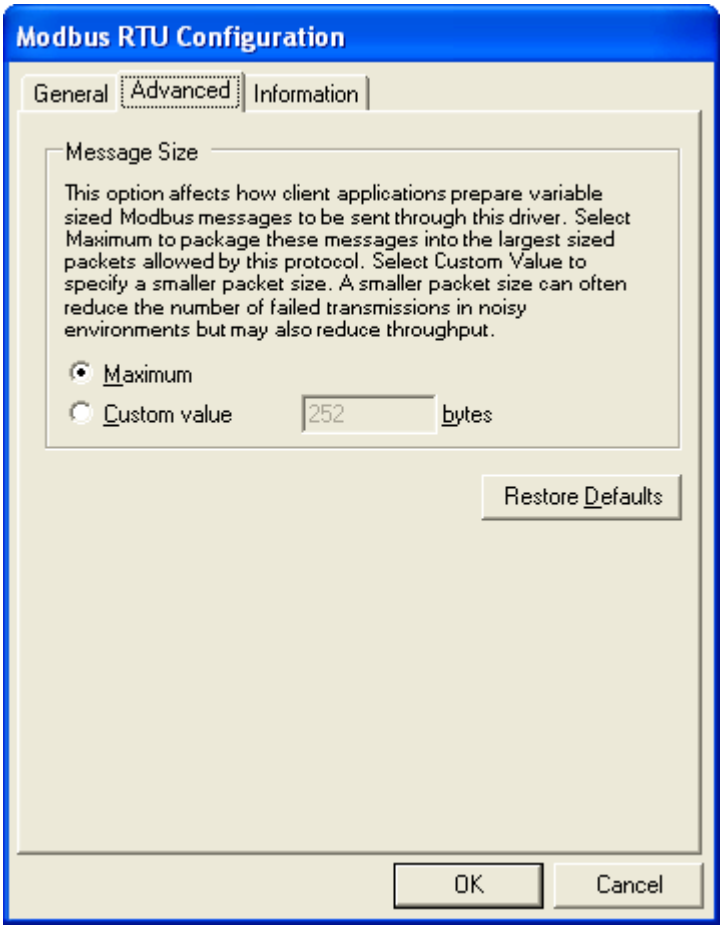
Check the **Inactivity Timeout** check box to automatically terminate the dialup connection after a period of inactivity. The Inactivity Time edit box is enabled only if this option is checked. The default state is checked.

Enter the inactivity period, in minutes, in the **Inactivity Timeout** box. The dialup connection will be terminated automatically after the specified number of minutes of inactivity has lapsed. This option is only active if the Inactivity Timeout box is checked. Valid values are from 1 to 30 minutes. The default value is 1.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the Phone Number field. The content of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


Modbus RTU Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
252
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can

increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

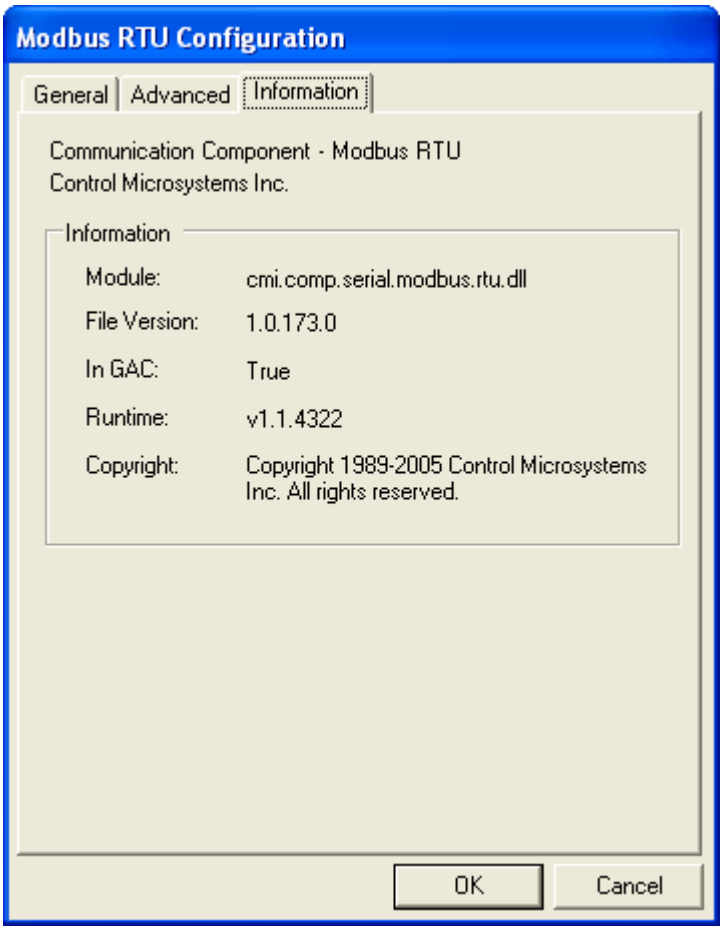
The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 250 when Addressing is set to Extended and Station is 255 or higher. When Addressing is set to Extended and Station is less than 255 valid values are 2 to 252. When Addressing is set to Standard valid values are 2 to 252.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

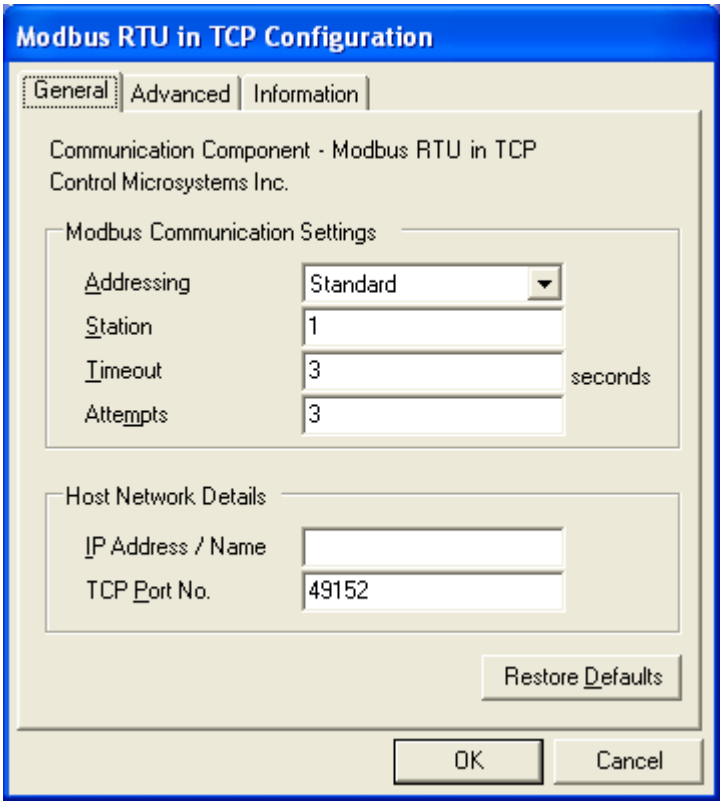
Modbus RTU in TCP

Modbus RTU in TCP message format is exactly same as that of the Modbus RTU protocol. The main difference is that Modbus RTU in TCP protocol communicates with a controller through the Internet and Modbus RTU protocol through the serial port. The Modbus RTU in TCP protocol does not include a six-byte header prefix, as with the Modbus\TCP, but does include the Modbus 'CRC-16' or 'LRC' check fields. The Modbus RTU in TCP message format supports Modbus RTU message format.

- To configure a Modbus RTU in TCP protocol connection, highlight **Modbus RTU in TCP** in the Communication Protocols window and click the **Configure** button. The Modbus RTU in TCP Configuration window is displayed.
- To select a configured Modbus RTU in TCP protocol connection, highlight **Modbus RTU in TCP** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus RTU in TCP is selected for configuration the Modbus RTU in TCP Configuration dialog is opened with the General tab selected as shown below.



The **Modbus Communication Settings** grouping contains Modbus specific communication settings including the addressing mode, the station address, the timeout interval as well as the number of attempts.

The **Addressing** parameter selects standard or extended Modbus addressing. Standard addressing allows 255 stations and is compatible with standard Modbus devices. Extended addressing allows 65534 stations, with stations 1 to 254 compatible with standard Modbus devices. The default is Standard.

The **Station** parameter sets the target station number. The valid range is 1 to 255 if standard addressing is used, and 1 to 65534 if extended addressing is used. The default is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

The **Host Network Details** grouping contains entries for the host's IP address or name and the TCP port on which it is listening.

The **IP Address / Name** entry specifies the Ethernet IP address in dotted quad notation, or a DNS host name that can be resolved to an IP address, of the PC where the ClearSCADA server is installed. The following IP addresses are not supported and will be rejected:

0.0.0.0 through 0.255.255.255

127.0.0.0 through 127.255.255.255 (except 127.0.0.1)

224.0.0.0 through 224.255.255.255

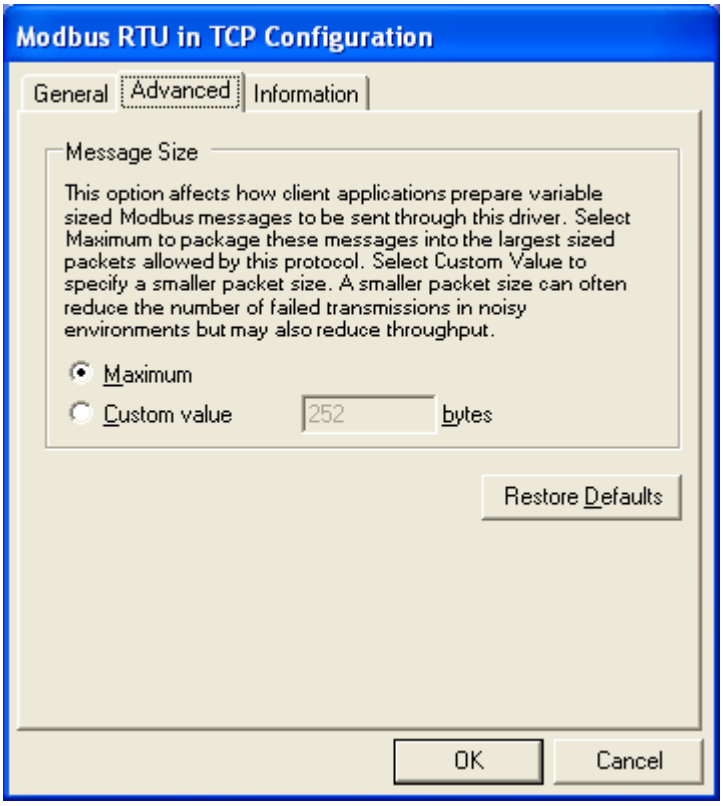
255.0.0.0 through 255.255.255.255.

The **TCP Port No.** field specifies the TCP port of the remote device. Valid values are 0 to 65535. The default value is 49152.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the IP Address / Name field. The content of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


Modbus RTU in TCP Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
252
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

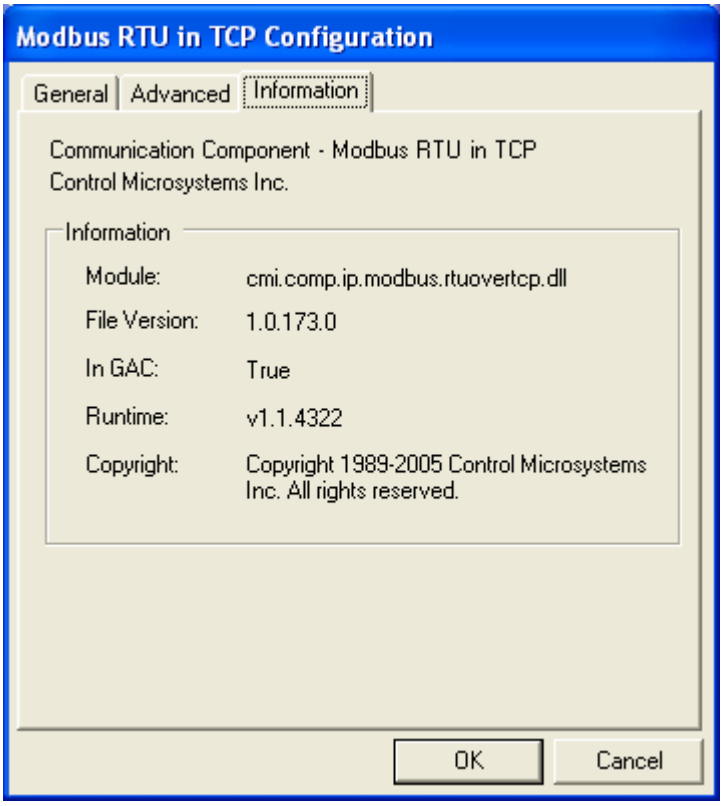
The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 250 when Addressing is set to Extended and Station is 255 or higher. When Addressing is set to Extended and Station is less than 255 valid values are 2 to 252. When Addressing is set to Standard valid values are 2 to 252.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

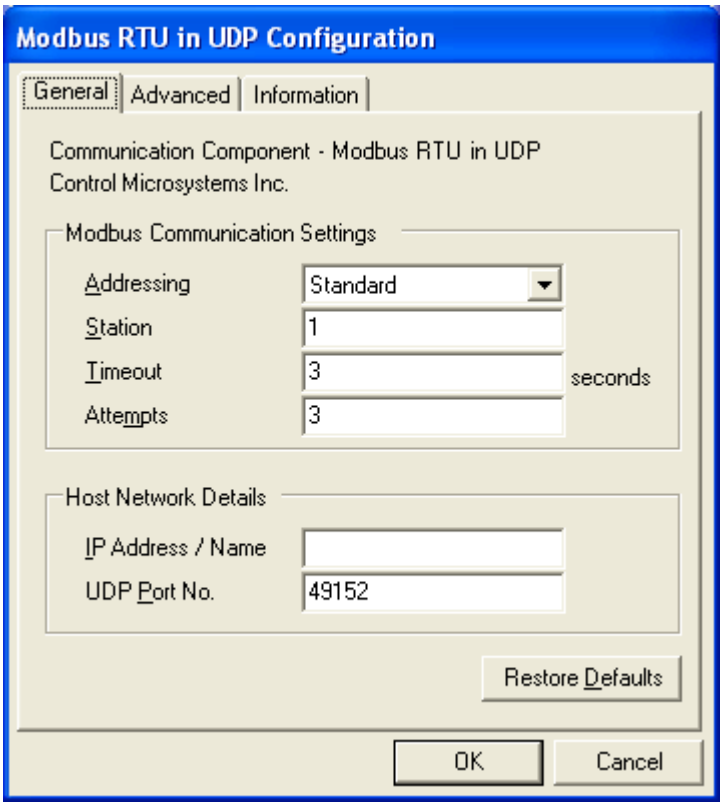
Modbus RTU in UDP

Modbus RTU in UDP protocol is similar to Modbus RTU in TCP protocol. It has the same message format as the RTU in TCP message. The only difference between them is one uses TCP protocol and another uses UDP protocol.

- To configure a Modbus RTU in UDP protocol connection, highlight **Modbus RTU in UDP** in the Communication Protocols window and click the **Configure** button. The Modbus RTU in UDP Configuration window is displayed.
- To select a configured Modbus RTU in UDP protocol connection, highlight **Modbus RTU in UDP** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus RTU in UDP is selected for configuration the Modbus RTU in UDP Configuration dialog is opened with the General tab selected as shown below.



The **Modbus Communication Settings** grouping contains Modbus specific communication settings including the addressing mode, the station address, the timeout interval as well as the number of attempts.

The **Addressing** parameter selects standard or extended Modbus addressing. Standard addressing allows 255 stations and is compatible with standard Modbus devices. Extended addressing allows 65534 stations, with stations 1 to 254 compatible with standard Modbus devices. The default is Standard.

The **Station** parameter sets the target station number. The valid range is 1 to 255 if standard addressing is used, and 1 to 65534 if extended addressing is used. The default is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

The **Host Network Details** grouping contains entries for the host's IP address or name and the TCP port on which it is listening.

The **IP Address / Name** entry specifies the Ethernet IP address in dotted quad notation, or a DNS host name that can be resolved to an IP address, of the PC where the ClearSCADA server is installed. The following IP addresses are not supported and will be rejected:

0.0.0.0 through 0.255.255.255

127.0.0.0 through 127.255.255.255 (except 127.0.0.1)

224.0.0.0 through 224.255.255.255

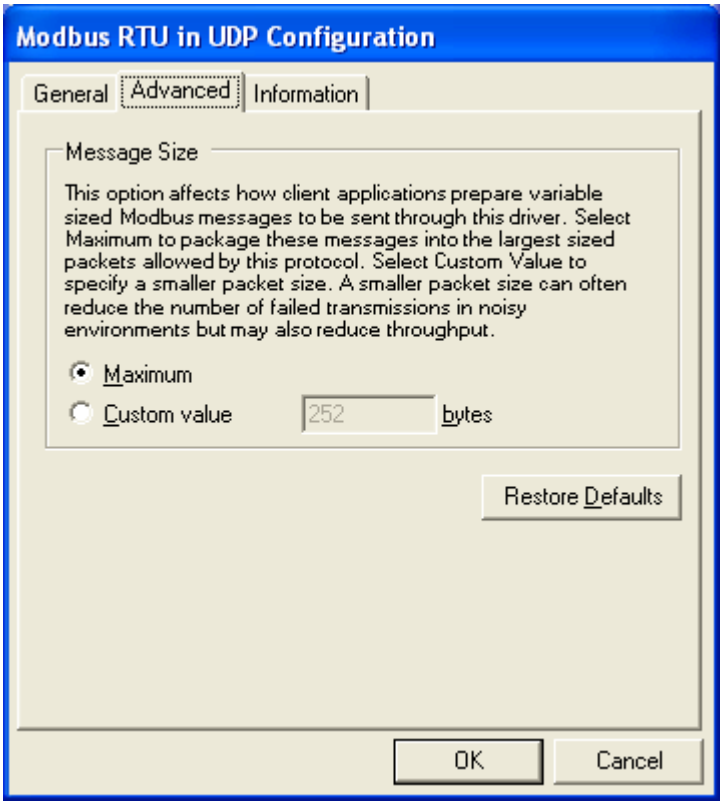
255.0.0.0 through 255.255.255.255.

The **UDP Port No.** field specifies the UDP port of the remote device. Valid values are 0 to 65535. The default value is 49152.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the IP Address / Name field. The content of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


Modbus RTU in UDP Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
252
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

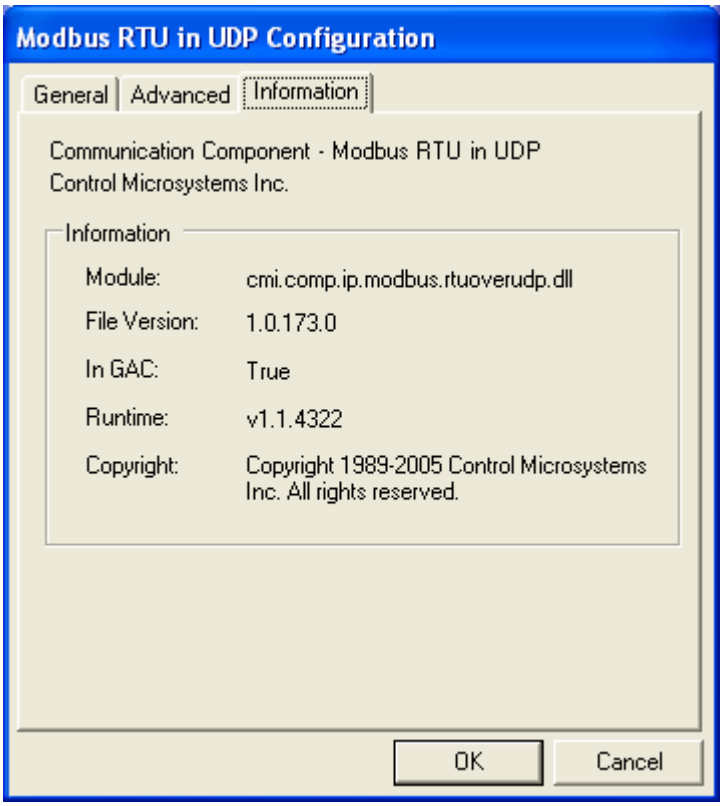
The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 250 when Addressing is set to Extended and Station is

255 or higher. When Addressing is set to Extended and Station is less than 255 valid values are 2 to 252. When Addressing is set to Standard valid values are 2 to 252.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

Modbus/TCP

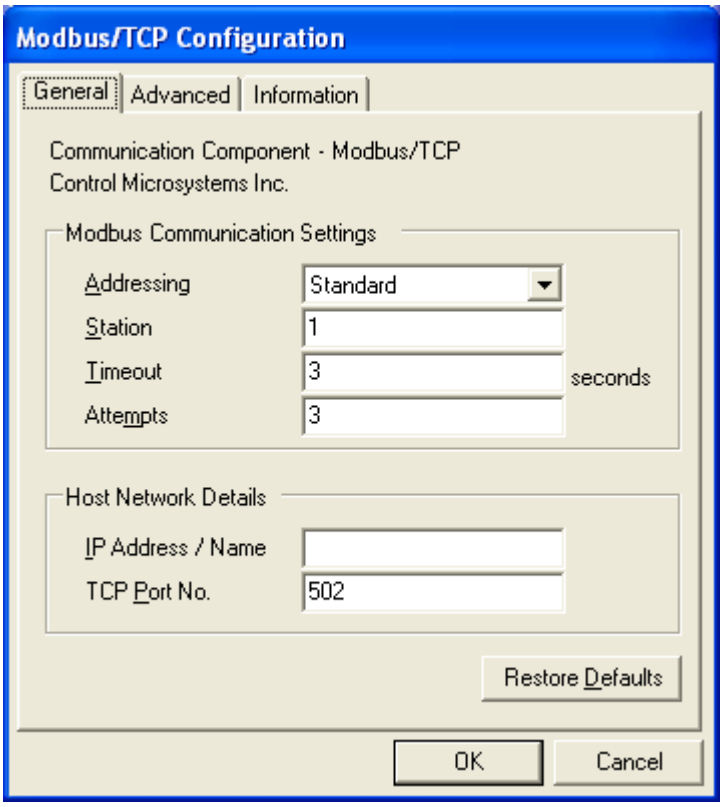
Modbus/TCP is an extension of serial Modbus, which defines how Modbus messages are encoded within and transported over TCP/IP-based networks. The Modbus/TCP protocol uses a custom Modbus protocol layer on top of the TCP protocol. Its request and response messages are prefixed by six bytes. These six bytes consist of three fields: transaction ID field, protocol ID field and length field. The encapsulated Modbus message has exactly the same layout and meaning, from the function code to the end of the data portion, as other

Modbus messages. The Modbus 'CRC-16' or 'LRC' check fields are not used in Modbus/TCP. The TCP/IP and link layer (e.g. Ethernet) checksum mechanisms instead are used to verify accurate delivery of the packet.

- To configure a Modbus/TCP protocol connection, highlight **Modbus/TCP** in the Communication Protocols window and click the **Configure** button. The Modbus/TCP Configuration window is displayed.
- To select a configured Modbus/TCP protocol connection, highlight **Modbus/TCP** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus/TCP is selected for configuration the Modbus/TCP Configuration dialog is opened with the General tab selected as shown below.



The **Modbus Communication Settings** grouping contains Modbus specific communication settings including the addressing mode, the station address, the timeout interval as well as the number of attempts.

The **Addressing** parameter selects standard or extended Modbus addressing. Standard addressing allows 255 stations and is compatible with standard Modbus devices. Extended addressing allows 65534 stations, with stations 1 to 254 compatible with standard Modbus devices. The default is Standard.

The **Station** parameter sets the target station number. The valid range is 1 to 255 if standard addressing is used, and 1 to 65534 if extended addressing is used. The default is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

The **Host Network Details** grouping contains entries for the host's IP address or name and the TCP port on which it is listening.

The **IP Address / Name** entry specifies the Ethernet IP address in dotted quad notation, or a DNS host name that can be resolved to an IP address, of the PC where the ClearSCADA server is installed. The following IP addresses are not supported and will be rejected:

0.0.0.0 through 0.255.255.255

127.0.0.0 through 127.255.255.255 (except 127.0.0.1)

224.0.0.0 through 224.255.255.255

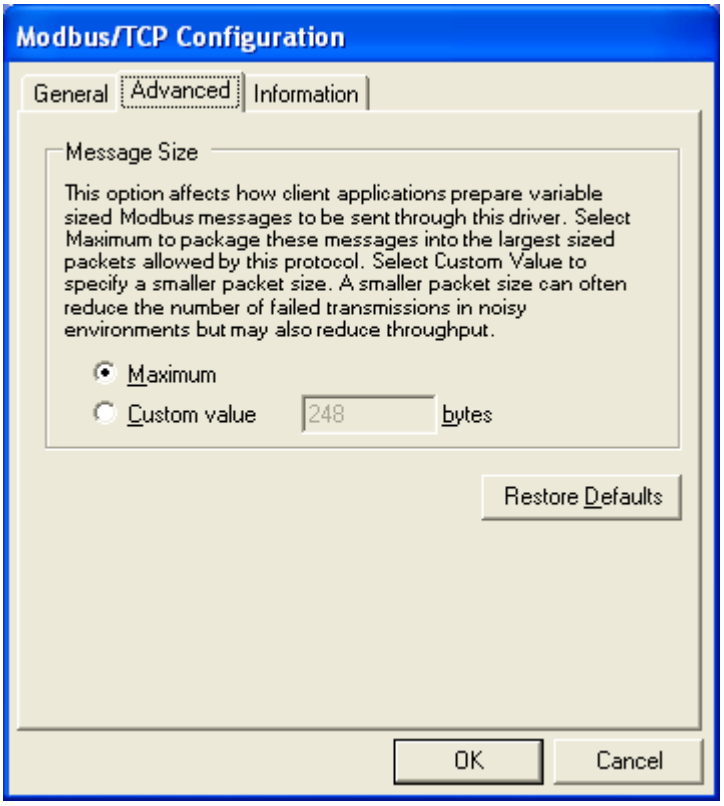
255.0.0.0 through 255.255.255.255.

The **TCP Port No.** field specifies the UDP port of the remote device. Valid values are 0 to 65535. The default value is 502.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the IP Address / Name field. The content of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


Modbus/TCP Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
248
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

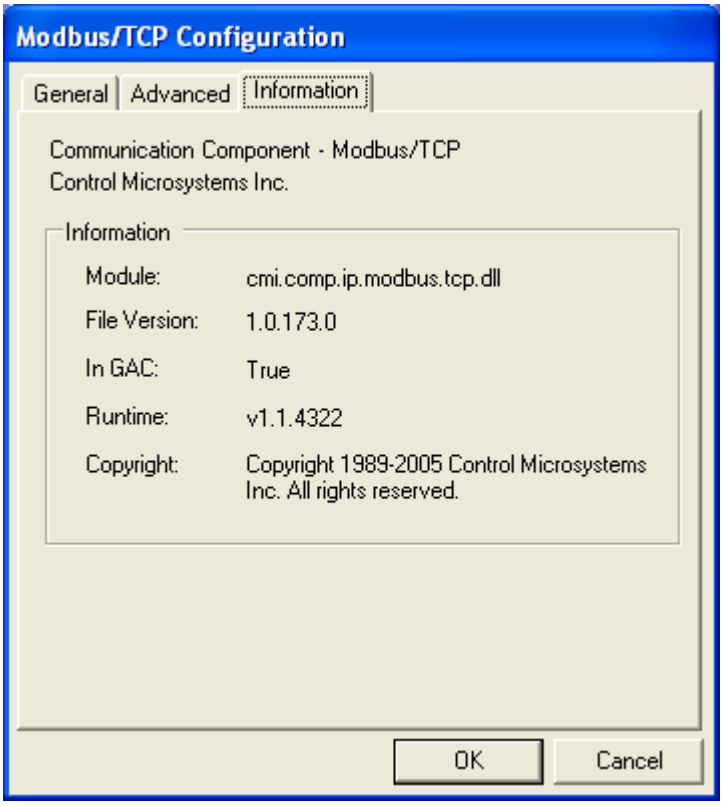
The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 246 when Addressing is set to Extended and Station is 255 or higher. When Addressing is set to Extended and Station is less than 255 valid values are 2 to 248. When Addressing is set to Standard valid values are 2 to 248.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

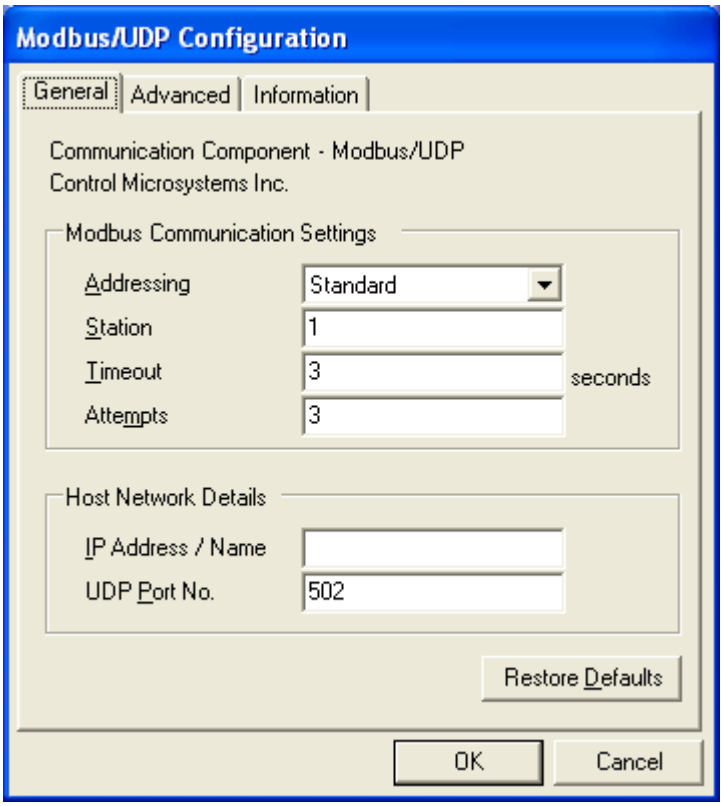
Modbus/UDP

Modbus/UDP communication mode is similar to Modbus/TCP communication mode. It has the same message format with the Modbus/TCP. The only difference between them is one uses TCP protocol and another uses UDP protocol.

- To configure a Modbus/UDP protocol connection, highlight **Modbus/UDP** in the Communication Protocols window and click the **Configure** button. The Modbus/ UDP Configuration window is displayed.
- To select a configured Modbus/UDP protocol connection, highlight **Modbus/ UDP** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus/UDP is selected for configuration the Modbus/ UDP Configuration dialog is opened with the General tab selected as shown below.



The **Modbus Communication Settings** grouping contains Modbus specific communication settings including the addressing mode, the station address, the timeout interval as well as the number of attempts.

The **Addressing** parameter selects standard or extended Modbus addressing. Standard addressing allows 255 stations and is compatible with standard Modbus devices. Extended addressing allows 65534 stations, with stations 1 to 254 compatible with standard Modbus devices. The default is Standard.

The **Station** parameter sets the target station number. The valid range is 1 to 255 if standard addressing is used, and 1 to 65534 if extended addressing is used. The default is 1.

The **Timeout** parameter sets the length of time, in seconds, to wait for a response from the controller before retrying (see Attempts), or ultimately failing. Valid entries are 1 to 255. The default is 3.

The **Attempts** parameter sets number of times to send a command to the controller before giving up and reporting this failure to the host application. Valid entries are 1 to 20. The default is 3.

The **Host Network Details** grouping contains entries for the host's IP address or name and the TCP port on which it is listening.

The **IP Address / Name** entry specifies the Ethernet IP address in dotted quad notation, or a DNS host name that can be resolved to an IP address, of the PC where the ClearSCADA server is installed. The following IP addresses are not supported and will be rejected:

0.0.0.0 through 0.255.255.255

127.0.0.0 through 127.255.255.255 (except 127.0.0.1)

224.0.0.0 through 224.255.255.255

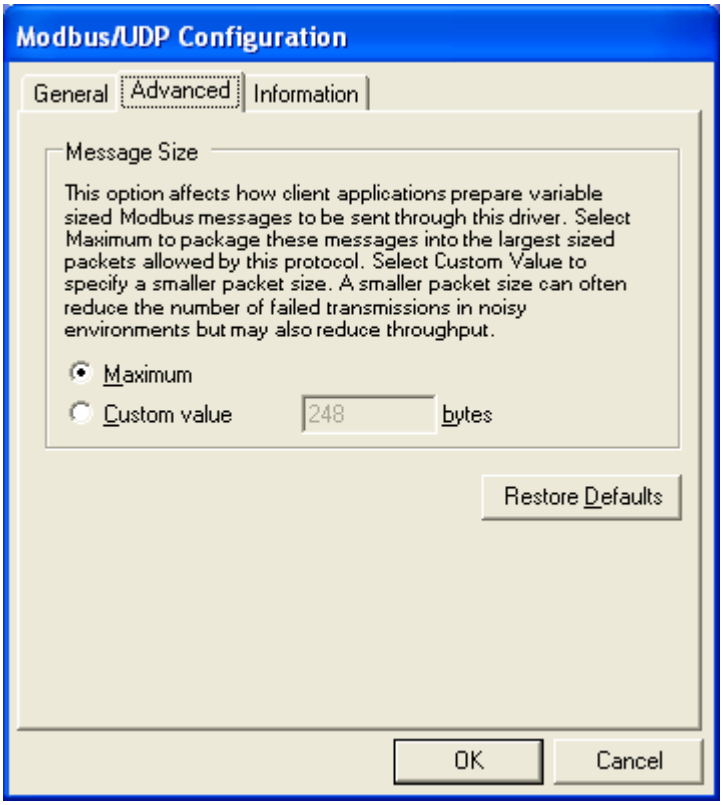
255.0.0.0 through 255.255.255.255.

The **UDP Port No.** field specifies the UDP port of the remote device. Valid values are 0 to 65535. The default value is 502.

- Click **Restore Defaults** to restore default values to all fields on this page, except for the IP Address / Name field. The content of this field will remain unchanged.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


Modbus/UDP Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
248
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

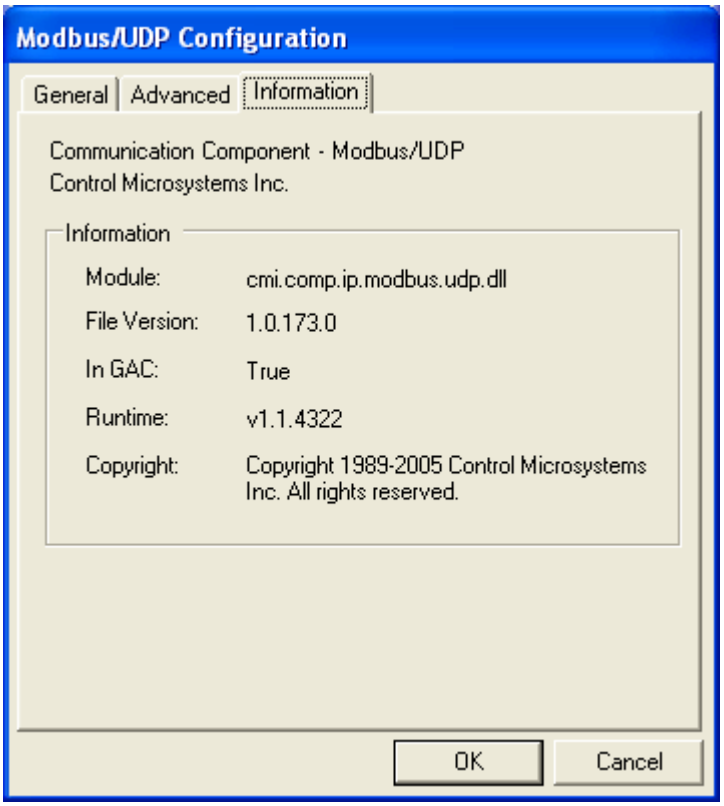
The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 246 when Addressing is set to Extended and Station is

255 or higher. When Addressing is set to Extended and Station is less than 255 valid values are 2 to 248. When Addressing is set to Standard valid values are 2 to 248.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

Modbus/USB

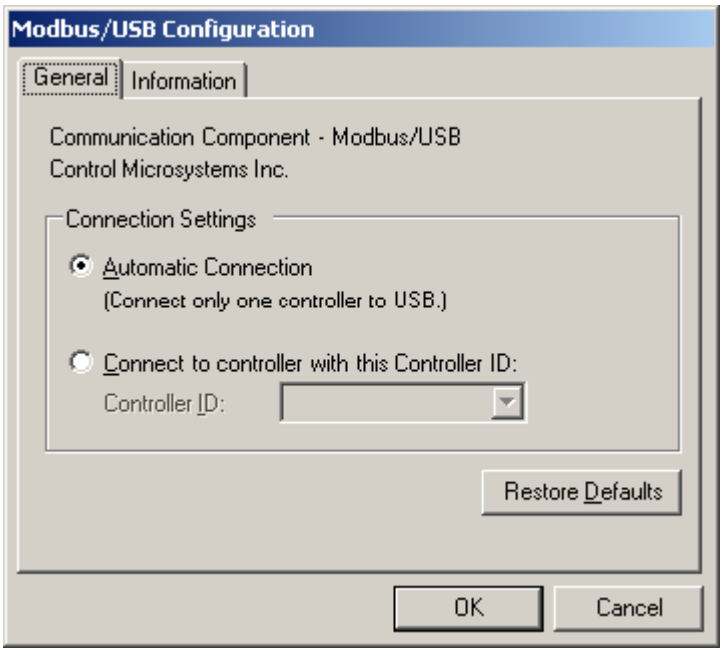
The Modbus/USB protocol specifies a Universal Serial Bus (USB) connection between SCADAPack controllers equipped with a USB peripheral port and the PC.

Note:	Windows NT does not support USB. The Modbus/USB selection will be displayed but it will not work with Windows NT. This is a limitation of the Windows NT operating system.

- To configure a Modbus/USB protocol connection, highlight **Modbus/USB** in the Communication Protocols window and click the **Configure** button. The Modbus/USB Configuration window is displayed.
- To select a configured Modbus/USB protocol connection, highlight **Modbus/USB** in the Communication Protocols window and click the **OK** button.
- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When Modbus/USB is selected for configuration the Modbus/USB Configuration dialog is opened with the General tab selected as shown below.



The **Connection Settings** grouping presents two options for Modbus/USB connections. These options are *Automatic Connection* and *Connect to controller with this Controller ID*.

Automatic Connection

The **Automatic Connection** selection enables communication with any single SCADAPack controller equipped with a USB peripheral port. An error message, as shown below, is displayed when more than one SCADAPack controller is detected on the Bus.

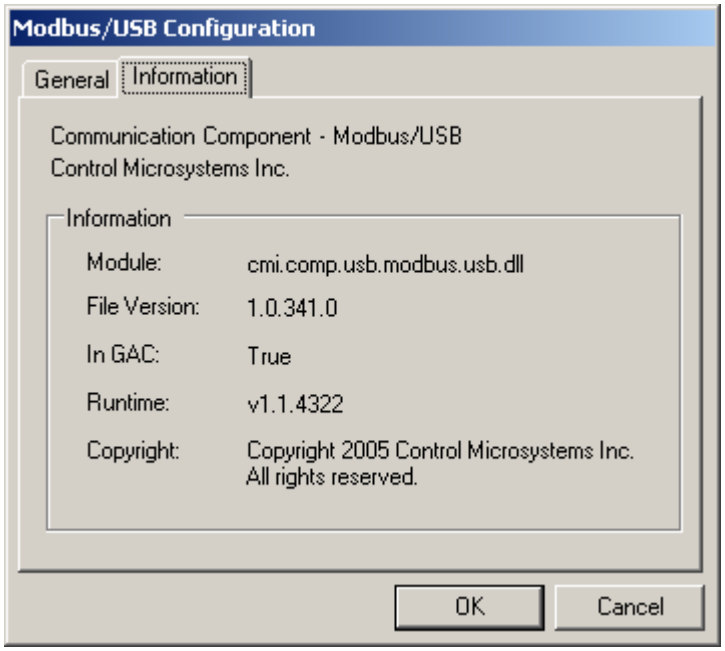
The **Connect to controller with this Controller ID** selection enables Modbus/USB communication to a specific controller regardless of the existence of multiple controllers on the bus. Each SCADAPack controller is uniquely identified through its Controller ID.

The **Controller ID** list box will display the Controller ID for each controller on the Bus. The Controller ID may be entered in the entry window or selected from the list.

The **Restore Defaults** button will restore the configuration dialog to the default state. The *Automatic Connection* option is selected, and the *Connect to controller with this Controller ID* selection will be disabled. If text was present in the *Controller ID* window when the button is pressed it will be displayed in grey.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

SCADAServer

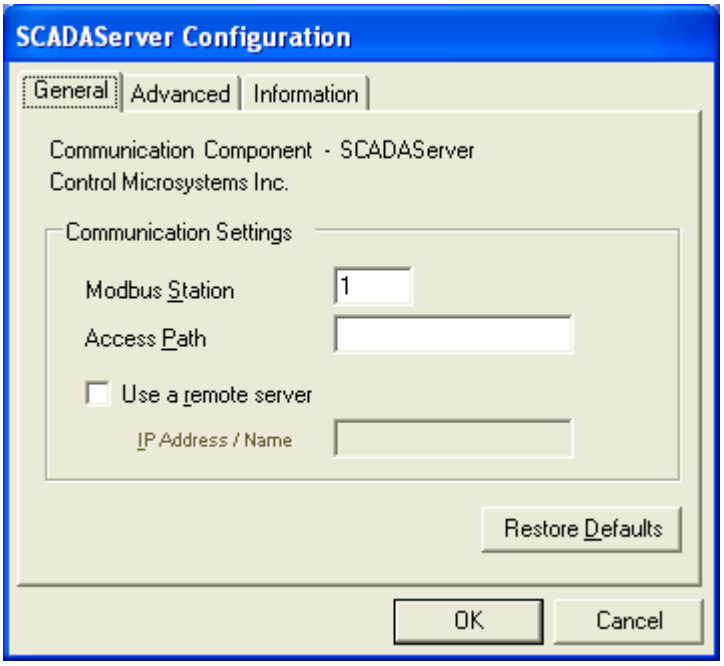
The SCADAServer protocol specifies a SCADAServer Host connection. Applications will act as an OPC client and route all programming commands through the SCADAServer Host to the SCADAPack controller. The type of connection to the field device: no flow control, hardware flow control or dial-up modem is configured in the SCADAServer Host itself.

- To configure a SCADAServer protocol connection, highlight **SCADAServer** in the Communication Protocols window and click the **Configure** button. The SCADAServer Configuration window is displayed.
- To select a configured SCADAServer protocol connection, highlight **SCADAServer** in the Communication Protocols window and click the **OK** button.

- To close the dialog, without making a selection click the **Cancel** button.

General Parameters

When SCADAServer is selected for configuration the SCADAServer Configuration dialog is opened with the General tab selected as shown below.



The **Communication Settings** grouping contains all essential details necessary to establish communication to a device through a local or remote SCADAServer installation.

The **Modbus Station** parameter specifies the station address of the target device. The valid range is 1 to 65534. The default is station 1.

The **Access Path** parameter specifies the access path to a SCADAServer connection. This parameter is entered as a string with a maximum size of 16 characters. This access path was named when a connection was defined within the SCADAServer installation. If the access path is left blank, the default SCADAServer connection will be used, as defined within the SCADAServer installation. The default for this entry is blank.

The **Use a remote server** check box defines whether the SCADAServer connection uses a SCADAServer installation installed on the same physical PC as the client application or on a remote PC. If the SCADAServer installation is located on a separate machine, check this option and enter the host name or IP address of the remote PC into the “IP Address / Name” edit box. If the SCADAServer installation is located on the same PC as the client application leave this box unchecked. The default state for this check box is unchecked.

The **IP Address / Name** entry specifies the Ethernet IP address in dotted quad notation, or a DNS host name that can be resolved to an IP address, of the PC where the ClearSCADA server is installed. The following IP addresses are not supported and will be rejected:

0.0.0.0 through 0.255.255.255

127.0.0.0 through 127.255.255.255 (except 127.0.0.1)

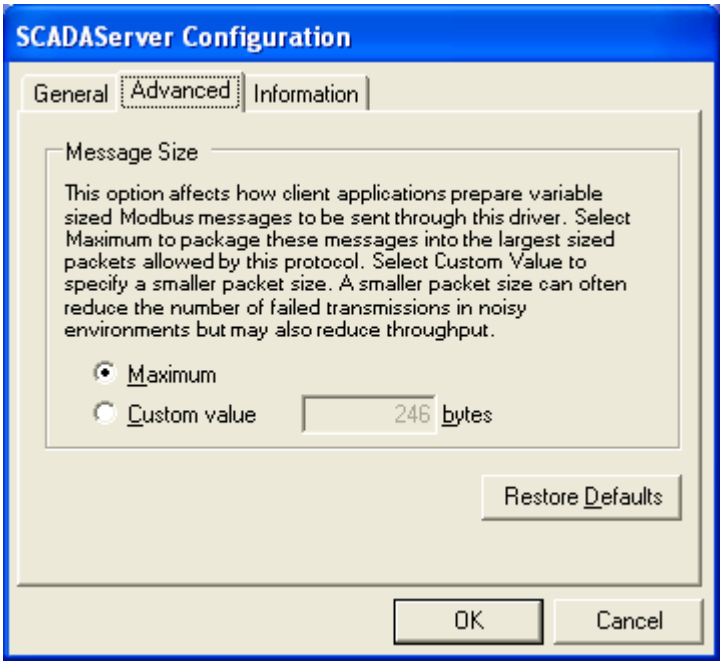
224.0.0.0 through 224.255.255.255

255.0.0.0 through 255.255.255.255.

- Click **Restore Defaults** to restore default values to all fields on this page.

Advanced Parameters

Advanced parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput. When the Advanced tab heading is clicked the Advanced dialog is opened as shown below.


SCADAServer Configuration
General
Advanced
Information
Message Size
This option affects how client applications prepare variable sized Modbus messages to be sent through this driver. Select Maximum to package these messages into the largest sized packets allowed by this protocol. Select Custom Value to specify a smaller packet size. A smaller packet size can often reduce the number of failed transmissions in noisy environments but may also reduce throughput.
Maximum
Custom value
246
bytes
Restore Defaults
OK
Cancel

The **Message Size** grouping parameters are used to control the message size for the protocol. Control over message length is needed when writing large amounts of data over certain communication networks. A larger value can improve communication speed but can increase the number of failed transmissions. A smaller value can reduce the number of failed transmissions but may reduce throughput.

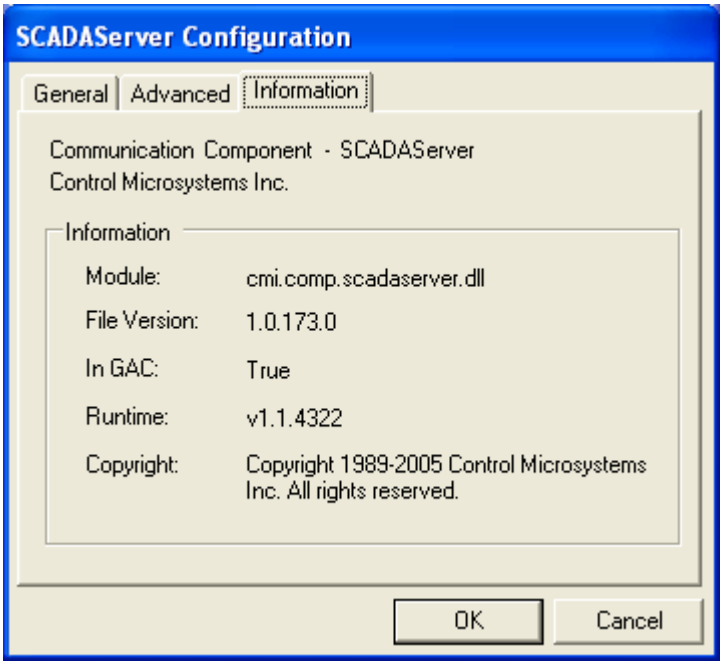
The **Maximum** selection indicates that the host application is to package messages using the maximum size allowable by the protocol.

The **Custom Value** selection specifies a custom value for the message size. This value indicates to the host application to package messages to be no larger than what is specified, if it is possible. Valid values are 2 to 246.

- Click **Restore Defaults** to restore default values to all fields on this page.

Information

Information displays detailed driver information. When the Information tab heading is clicked the Information dialog is opened as shown below.



The Information grouping presents informative details concerning the executing protocol driver.

Module is the physical name of the driver.

File Version is the version number of the driver.

In GAC indicates whether the module (assembly) was loaded from the Global Assembly Cache (GAC).

Runtime is the version of the Common Language Runtime (CLR) the driver was built against.

Copyright indicates the copyright information of the protocol driver.

Connect to Controller Command

The Connect to Controller command starts a dial-up connection to a remote Flow Computer. To connect to a dial-up flow computer, select **Connect to Controller** from the **Communication** menu. Wait for RealFLO to connect to the remote Flow Computer.

Disconnect from Controller Command

The Disconnect from Controller command terminates a dial-up connection. To disconnect from a dial-up Flow Computer select **Disconnect From Controller** from the **Communication** menu. Wait for RealFLO to disconnect with the remote Flow Computer.

Communication Progress Dialog

The Communication Progress dialog is displayed whenever RealFLO is communicating with the Flow Computer. The dialog indicates the operation being performed and the status of the communication. If a long operation is being performed, a progress bar is displayed as well.

Click on the **Cancel** button to abort the operation. This is useful if communication is not progressing or if you have initiated the operation in error.

Communication Failures

Communication with the Flow Computer may fail for one of the following reasons.

- The message to the Flow Computer was garbled or lost by the communication network.
- The response from the Flow Computer was garbled or lost by the communication network.
- The Flow Computer is not connected.
- The PC Serial Port Settings are not set correctly.
- The Flow Computer did not respond or responded too late. Setting the time-out value too small in the PC Communications Settings can cause this.

If communication fails a message box appears. You have two options:

Select **Retry** to attempt the communication again. This is most useful when an occasional message is garbled by the communication system.

Select **Cancel** to abort the command. Select this if all retry attempts fail. Correct the source of the problem and retry the command.

Inactive Phone Connection Dialog

The Inactive Phone Connection dialog is displayed when a dial-up phone connection has been inactive for longer than the period set in PC Communications Settings. The dialog warns that the connection will be terminated.

Click on **OK** to terminate the connection immediately.

Click on **Cancel** to stay connected.

Window Menu

The Window menu contains the commands for opening and arranging all windows used in SCADALog.

New Window Command

Use this command to create a copy of the currently selected window. You can change the view in the copy of the window so you can look at more than one view at a time.

Cascade Command

Use this command to arrange all open, non-minimized windows, so they stack upon each other with an offset so the title bar of each window is visible. All minimized windows are collected at the bottom of the main window.

Tile Command

Use this command to arrange all open, non-minimized windows, so that all are visible. All minimized windows are collected at the bottom of the main window.

Arrange All Command

Use this command to arrange all icons (minimized windows) at the bottom of the main window.

Open Window List

Use the numbers and filenames listed at the bottom of the Window menu to switch to any open window. Choose the number that corresponds with the window you want to activate.

If there are more than nine open windows, the last item in the open window list will be the command *More Windows*. This will open a dialog with a list box showing all open windows.

Help Menu

The Help menu contains the commands for opening and using SCADALog on line help and for viewing information about SCADALog.

Contents Command

Use this command to open the SCADALog help file using the Windows Help program. The Contents page of the help file is displayed.

The help file has a general description of how the SCADALog program operates and how to use the SCADALog program. It also has specific descriptions for each view, dialog and command.

About Command

Use this command to display information about SCADALog.

Script Execution

SCADALog Script files, created with the Edit Script command can be executed in two modes: automatic mode and manual mode.

Automatic mode

Automatic mode allows the user to configure other applications to execute the SCADALog script command automatically. Direct user-operation of SCADALog is not necessary in this scenario. SCADALog is completely run by another application.

To run the script automatically, a command line has to be configured in the user application. The command line is in following format:

```
SCADALog configfile.slc [/s=scriptfile.aut [/NoWindow]]
```

where `/NoWindow` is an option.

If the command line doesn't include the `/NoWindow` option, the SCADALog application window is displayed during the execution of the script, and a communication dialog allows the user to cancel the current operation at any time.

If the command line includes the `/NoWindow` option, the SCADALog application window is not displayed during script running, and the user can't abort the script execution before it is completed.

As an example, the following command line, entered in a DOS prompt, will execute the commands contained in the script file `demolog.aut` in a SCADALog application called `demo.slc`. The SCADALog application will not be displayed during the script file execution.

```
SCADALog demo.slc /s=demolog.aut /NoWindow
```

As a further example, the following command line will execute the commands contained in the script file `log1.aut` in a SCADALog application called `logtest.slc`. The SCADALog application will be displayed during the script file execution.

```
SCADALog logtest.slc /s=log1.aut
```

Manual mode

Manual mode allows the user to execute a SCADALog script command manually from the **Read Logs** dialog. Refer to the **Read Logs Command** section for more detailed information.

Error processing

If an error occurs in automatic mode with the `/NoWindow` option enabled, SCADALog will exit.

If an error occurs in automatic mode with the `/NoWindow` option disabled, an error message dialog will be displayed. Selecting the OK button will exit SCADALog.

If an error occurs in manual mode, an error message dialog will be displayed. Selecting the OK button will close the dialog and return SCADALog to the main menu control.

Log Results File

Results of the reading of data logs may be saved to a log file. This log can be used to monitor the operation of automated script execution or to maintain a history of logs read.

The user can set whether or not results are logged. See the **Log Results** command section for more information.

The results are saved in a text file as `filename.LOG` in the subdirectory where the SCADALog configuration file `filename.slc` resides.

The format of the log file is:

The log information consists of three parts as follows:

Date & Time stamp	Operation	Result

The Date & Time stamp indicates the date and time at the end of the operation. The date is recorded using the short date format defined in the Control Panel. The time is recorded using the time format defined in the Control Panel.

The Operation indicates the script command that was executed.

The Result indicates the normal result or error message.

Example:

2001/07/16 14:35:13 -- Read Log 1 -- 14 new records, 0 discarded records

2001/07/16 14:35:15 -- Read Log 2 -- 50 new records, 0 discarded records

2001/07/16 14:35:15 -- Save

2001/07/16 14:35:15 -- Exit